PULP & PAPER

JANUARY 1955

What's ahead in 1955 and after in paper and board

see page 54

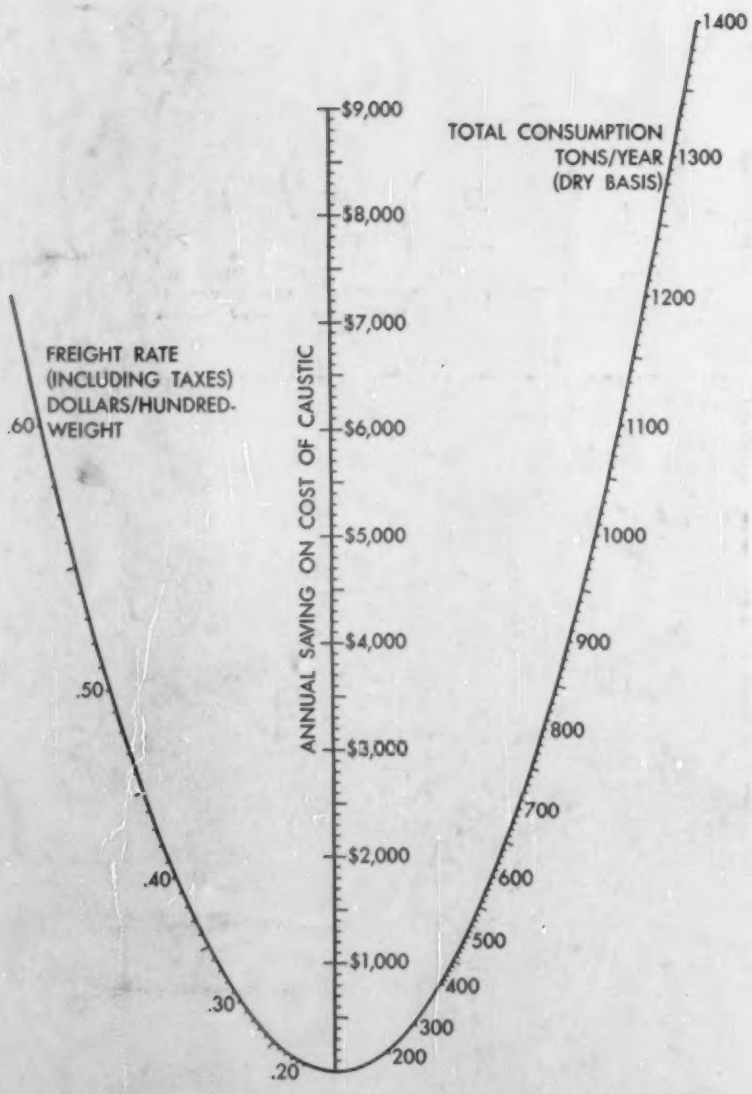
How St. Regis split new bleach plant at Pensacola

see page 88

A New Mill At Calhoun, Tennessee

and at Cornerbrook, Newfoundland, Mill is still Expanding

WATER MARK IN AMERICA—Two of Eng[illegible] firm's mills in six nations [illegible] this continent; story on new Tennes[illegible] mill on page 64



Which saves you more... **50% or 73% Caustic Soda?**

This nomograph can help you decide Are you using the caustic solution that's least expensive for you? A few seconds' calculation with this nomograph will help you decide.

How to find if you can save on 73% caustic soda Simply draw a line from your freight rate (including taxes) to your annual consumption in tons on a dry basis. Your approximate savings will appear where this line intersects the center line of the nomograph.

This figure represents your savings on freight charges after the $2.00 premium price on 73% caustic soda has been deducted.

From this figure you must deduct a depreciation charge based on the cost of dilution equipment. Your Hooker technical service man is ready to advise you on the equipment needed and its cost.

Double-check your findings this way Before you make a final decision on 50% or 73%, give yourself the advantage of expert technical advice. Let your Hooker technical service man show you what equipment you will need for 73%. He will figure your exact savings—based on a realistic study of your operations.

For quick service, write or phone the nearest Hooker office.

"CAUSTIC SODA BUYER'S GUIDE" is the title of a new pocket-size booklet we'll be glad to send you free. Contains helpful facts on the economics of 50% and 73% solutions; other forms of caustic soda; capacities of tank cars and other containers; useful shipping information. Write us for a copy.

HOOKER CHEMICALS

1905—Half a Century of Chemicals from the Salt of the Earth—1955

HOOKER ELECTROCHEMICAL COMPANY

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built to suit
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Production
Requirements.
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RICE BARTON CORPORATION
Worcester, Massachusetts
Paper Machine Builders Since 1837
West Coast Distributor: Ray Smythe
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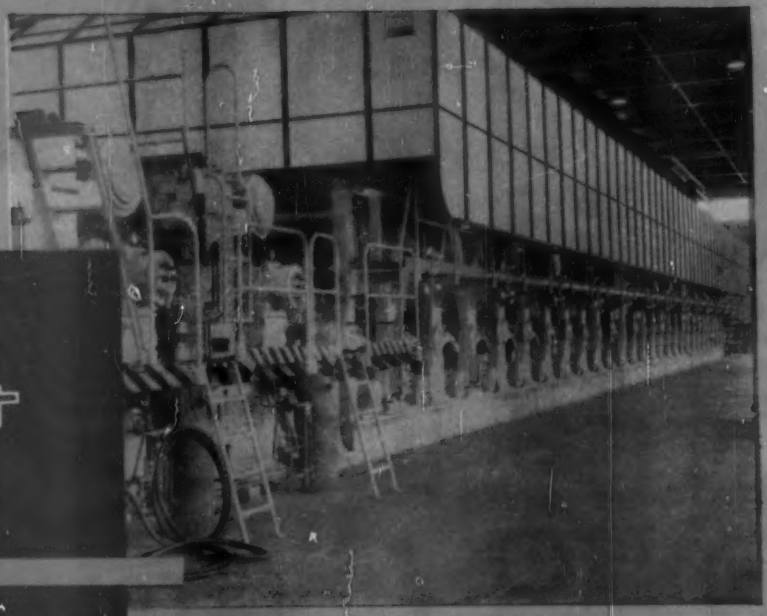
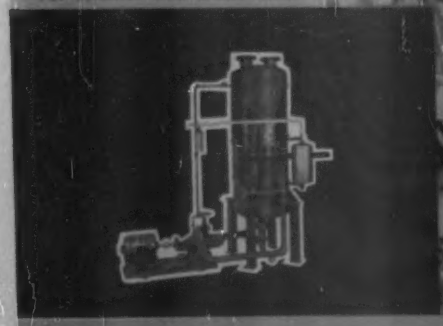
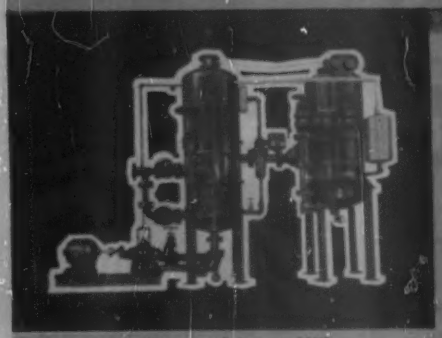
IS YOUR DRYER IN GOOD HEALTH?



For Smaller and Older Mills





For New and Large Mills

Your dryer is in excellent health if you use a Fulton Dryer Drainage System to snap it to attention and make it behave. Fulton systems generally return the following benefits:

- 10% to 30% more drying capacity
- 5% to 20% cut in steam input
- Proper graduation of drying temperatures
- Uniformly dried sheet, regardless of machine speed
- Automatic control of drying under all conditions
- Less broke—far less broke
- Less of shrinkage, cockling, hardening

From the largest and most modern mill clear on down to the smallest and oldest, Fulton systems—close to 1000 of them—are proving their worth.

Every year that a mill operates without a Fulton drainage system on its dryer, it pays for one without having it.

Is your dryer in good health? If not, the installation of a Fulton system rates serious consideration.

ROSS MIDWEST FULTON CORPORATION

DAYTON, OHIO

A SUBSIDIARY OF J. O. ROSS ENGINEERING CORPORATION

PULP & PAPER

Production and Management Magazine of the Industry

January, 1955
Vol. 29—No. 1

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COMMENT

What Public Doesn't Know About U.S. Forests

Annually, newspapers carry inconspicuous items announcing seasonal closure of forest areas to public entry. The bar goes up for three or four months during the most attractive time to take advantage of forest recreational opportunities.

This practice is indulged in by all types of forest ownerships. It minimizes fire risk. But it also keeps the actual conditions of the nation's publicly-owned timber from becoming popularly known. Few people express concern about either aspect—being kept out, or the condition of the forests.

At best, only an extremely small percentage of the people realize the conditions existing in forest areas a half-mile removed from the roadway. In fact, not many know the conditions of forests into which roads have been extended during recent years.

Many recently-built forest road extensions on U. S. western forest lands visited by PULP & PAPER during the past few years, present further realistic insight into the frightful condition of the "federal reserve forests." From the amount of fallen and standing dead timber readily observable in the newly opened areas, it is difficult to realize that these forests are ostensibly managed on a "sustained yield" basis.

Although fire has long been looked on as the great timber dread, it actually yielded sometime ago to the insect kingdom as the No. 1 destroyer.

Without under-rating the destructiveness of fire, some students of forest management feel that had forest fires occurred in some of today's remotely located insect problem areas, these forests would now be growing healthy stands of thrifty trees instead of supporting decadent, over-ripe and dead trees. The latter not only results in negative annual increment but provides favorable incubation conditions for build-up of more tree-killing insects.

About Employe and Community Relations

A new year calls for good resolutions, and we have one to make.

We are going to take a good hard look at the speeches and articles that come across our desk, telling management of pulp and paper industries how they should do this or that to improve employe and community relations.

This industry has done a splendid job in these fields exchanging information on successful policies and techniques. PULP & PAPER was first to report in detail the highly successful Wisconsin Workshops, which began way back in 1950, and rapidly set an example in dealing with these problems for *all* industries. Don Rochester of APPA, has done a swell job of introducing the Wisconsin Workshop formula into every other region of the U.S. where pulp and paper is made. Most companies have set a high standard for employe and community relations.

Most articles are very general in the way they lecture management men. They cuss out management in general, even in violent terms, but always leave a loophole so that the actual management man who is reading can consider himself an exception to the rule.

Maybe the preaching management counsellors, psychoanalysts, etc., are merely another by-product of the poor church attendance of today.

Anyway, we are starting 1954 by saying for the record that pulp and paper management is setting a good example in employe and community relations.

saleable
for more tons per day

John Howell, Albany Felt sales engineer, and Charles E. Radley, Vice Pres. and Mill Supt. of Columbia Box Board Mills, Inc., discuss felt operation on the mill's board machine at the Chatham, N.Y., plant, considered to be one of the highest producers per inch of trim in the industry. Columbia considers Albany felts an integral part of their record production of "more tons per day."

call in your Albany sales engineer

Albany Felt's technically trained sales engineers are your source of the information and assistance you need to get the most efficient production from your felts. They are backed by the industry's leading service engineers and designers, outstanding chemical and mechanical laboratories, an extensive research and development program and products *famous* for uniformity.

Take advantage of this top combination of technical "know how" by calling in your Albany sales engineer to help solve felt operation problems. Let him show you how proper application of Albany felts can help you maintain top production and sheet quality. The result: "More SALEABLE Tons Per Day!"

FREE! Felt Performance Record Book for Mill Superintendents, Managers, Purchasing Agents. Write for your handsome leather binder containing convenient forms for maintaining records and graphs of felt performance, felt inventory, etc.

ALBANY FELT COMPANY

"World's largest Manufacturer of Paper Machine Felts"

MAIN OFFICE AND PLANT, ALBANY 1, NEW YORK

Other plants: Hoosick Falls, N. Y., North Monmouth, Maine, Cowansville, Quebec.

How to get longer life from pulpwood conveyor chain

Specify LINK-BELT SS-150+. Some users report it has outlasted other quality chains 2½ times

THE inherent features of this 100,000 lb. average ultimate strength chain make it ideal for pulpwood conveyors operating under heavy loads and abrasive conditions. Extra durability is provided by ample, hardened joint bearing surfaces. Hardened pins and bushings are rigidly locked into hardened steel sidebars.

Strict production requirements apply to every detail of every chain bearing the Link-Belt double arrow >——< trademark. What's more, so complete is the Link-Belt line that you can select a chain that meets your needs exactly. Get all the facts from your Link-Belt distributor or representative.

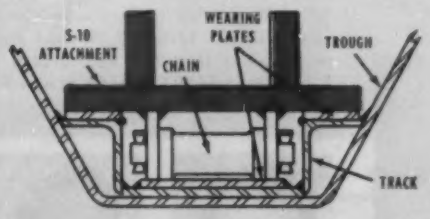
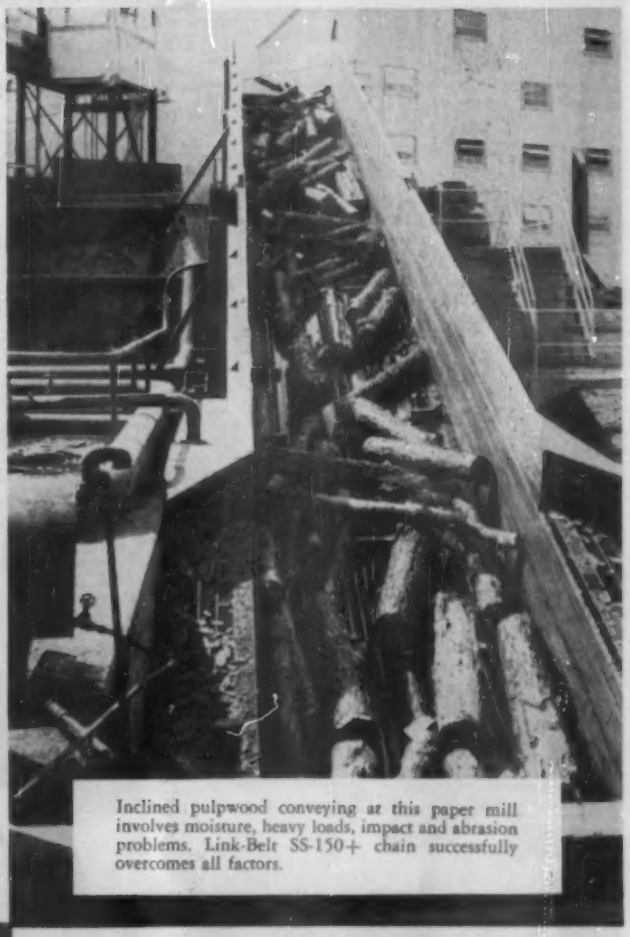
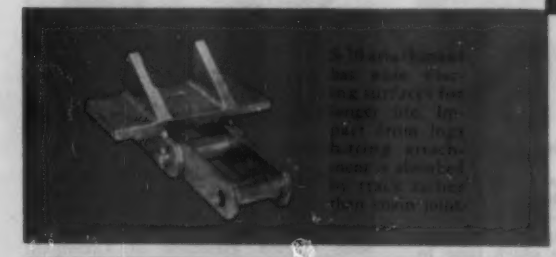


Diagram shows S-10 attachment on the rugged SS-150+ chain. Vertical spurs can be omitted for horizontal woodyard conveyors.



Inclined pulpwood conveying at this paper mill involves moisture, heavy loads, impact and abrasion problems. Link-Belt SS-150+ chain successfully overcomes all factors.



LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 13.529

No ONE chain serves every purpose--- get the RIGHT one from Link-Belt's complete line

Class C combination chain — popular, durable, low-cost chain for elevators and conveyors.

Class H combination drag chain offers long life for tough refuse conveying. Rigid block links are reversible.

Rivetless chain, with its light weight and high strength, is ideal for conveyors.

PULP & PAPER PERSONALS

MIDDLE WEST NEWS

Ekstrom Is Mill Mgr.; Rudy Herbig in Florida

PAUL W. PURPUS is new comptroller of The Mead Corp., with headquarters in Dayton, O., succeeding JOHN H. CUNNINGHAM, who continues as a director. LLOYD W. HALE was appointed general accounting manager with headquarters in Chillicothe, O. Both he and Mr. Purpus had been assistant comptrollers. Both were U. S. army sergeants overseas in World War II.

J. ALDEN EKSTROM is new general manager of Chase Bag's paper mill at Chagrin Falls, O. He recently was tech. superintendent at Alton Box Board Co. He was former paper consultant to Chas. T. Main Inc., and to Mead Sales, and was tech. director at the Tomahawk, Wis., kraft mill.

CARL W. GUELCHER, with Hammermill Paper for 32 years, has joined Nekoosa-Edwards Paper Co. as head of a new statistical dept. of the finance division. Graduate of Pratt Institute, with an m. e. degree, he also studied finance at Penn State and American Institute of Banking and worked in many departments of Hammermill.

GEX CONDIT is new supervisor, work standards, Gardner Board & Carton. Born in Gary, Ind., he graduated from Yale in 1946, joined Gardner in 1950, took leave for service in Korea as a marine. FRANK L. STRAND is a new chemist with Gardner. Born in Norway, he was with U. S. Gypsum. Graduated from Northwestern in 1948.

FREDERICK W. SUDHOFF, a U. of Cincinnati grad, and ROBERT L. SULLIVAN, Tennessee grad and formerly with Champion in Texas and Philip Carey Co., are new industrial engineers with Gardner.

RUDY HERBIG, Central West sales manager for Reliance Electric & Mfg. Co., whose headquarters are 154 East Erie, Chicago, wound up a busy year with a well-earned vacation in Florida. He drove there with his wife, Grace.

MATTHEW DUPONT, No. 4 machine backtender at K-C's Kimberly, Wis., mill, became the sixth brother of the Dupont family in Kimberly-Clark's Quarter Century Club. HERMAN DUPONT, office mgr. at Neenah headquarters, has 36 years. JOSEPH, WILLIAM and JOHN have over 30 each, and one other, HARRY, had over 30 when he died in 1948. Another brother, FRANK, is a priest.

Natwick Name Well Known in Industry and Arts

JOHN W. NATWICK (left), member of a family which is widely known in this industry, is Sales Engineer, Paper and Pulp Dept., Jackson & Church Co., Saginaw, Mich. He has made a study of continuous processes for kraft and semi-chemical pulps, a subject he is discussing here with BRUCE ARMSTRONG, (right), Technical Director of J & C's Paper and Pulp Dept. He said Mr. Natwick will devote much time to bleaching, de-inking, and other uses for Zenith pulp presses and Roto-pulper machines.

Mr. Natwick worked in mills near his home town, Wisconsin Rapids, Wis., before WW I, and after army service graduated from Wisconsin U. in chemistry. He pioneered in kraft bleaching work at the U.S. Forest Products Laboratory, has served Crossett Paper Mills, Central Paper and Crown Zellerbach in various posts including Gen. Supt. and Tech. Director.

His relatives in the industry include two brothers, A. G., Res. Mgr., East Texas Pulp & Paper Co., Evadale, Tex., and V. G. Natwick, Foreman at Crown Z, Camas, and a nephew, Ben Natwick, Pacific Coast rep. for Appleton Wire, and others in Wisconsin Rapids. A third brother, Grim Natwick, is a designer of Walt Disney animated cartoons. A cousin, Mildred Natwick, is a noted movie, stage and television actress. Another is a concert pianist. John and his brothers were not sons of a pulp or paper maker, their father having been a furniture store owner in Wisconsin Rapids.

NEW ASSIGNMENTS AT NEKOOSA-EDWARDS

New titles and duties for these three Nekoosa Edwards Paper Co. men (left to right): TAD R. MEYER, former Advertising and Public Relations Mgr., has been named to the newly-created position of Director of Advertising and Sales Promotion; KENDALL GREEN, advertising staff member since 1951, has been appointed Asst. Advertising Mgr. KEITH ROBERTS, formerly Asst. advertising Mgr., has been named Public Relations Mgr., and will be in charge of community and public relations programs and publicity. He will continue as Editor of the firm's Nepco News.

JOHN SHELENDICH joined Thilmany's converting division from Procter & Gamble where he was packaging development engineer.

LARRY A. MOORE, formerly chief engineer at the Elkhart, Ind., mill until he joined Black-Clawson over a year or so ago, has been promoted to chief engineer of the Hamilton, O., division of B-C. JAMES MARTINDALE is new first assistant cheif engineer at Shartle division.

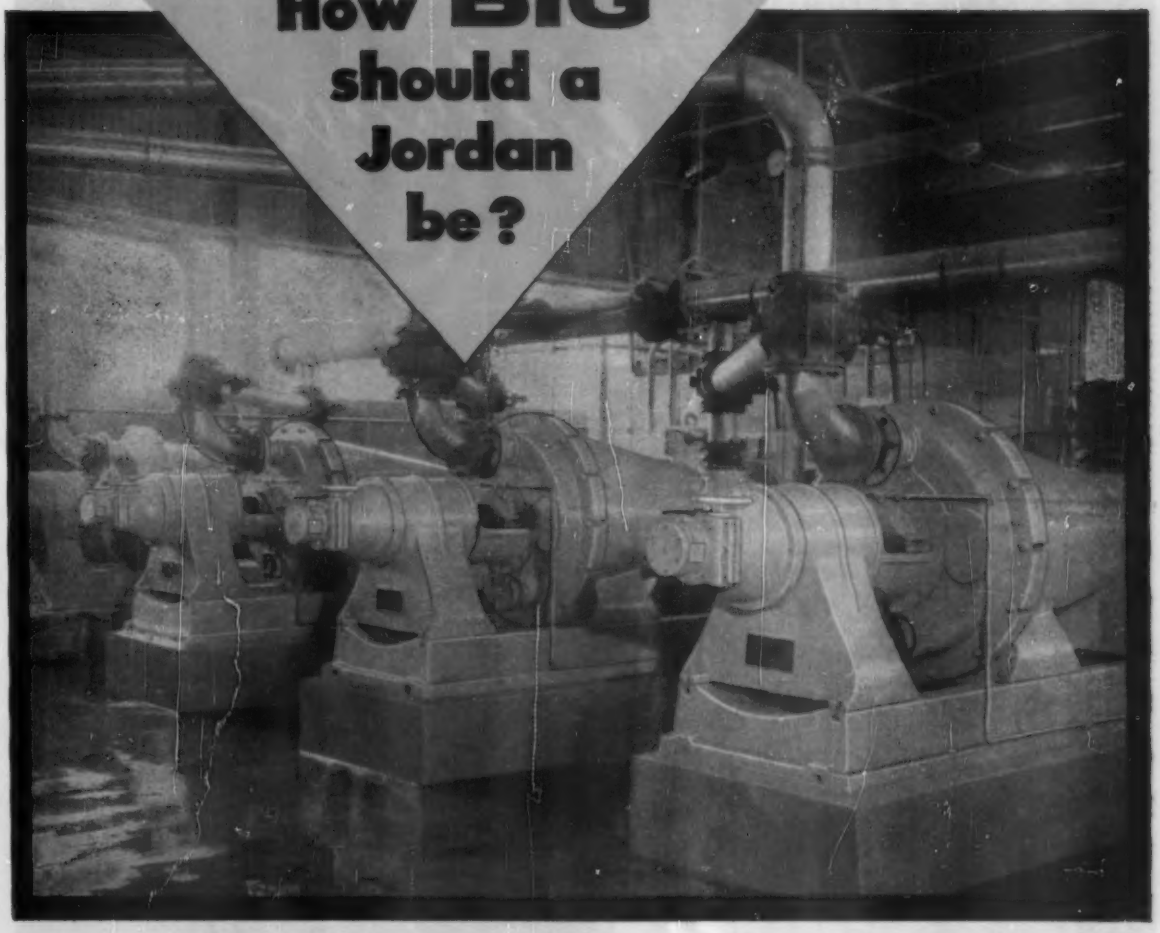
IN MIDDLE WEST NEWS

J. BRUCE MORFORD (left), who recently came to industry notice for community relations works in Southeast and at Champion's Canton, N. C. mill, has been elected President of Champion Paper's newest subsidiary, Mid-West Bottle Cap Co., of Belvidere, Ill., a 30 yr. old firm, which makes aluminum bottle caps, hot drink cups, paperboard caps, tops, etc., employs 175. Ray Blodgett, founder, continues as consultant.

NORMAN T. BURKE (right), new Midwest Sales Representative for Fibreboard Products Inc. in a new office opened in the Daily News Bldg., Chicago. He has been with Fibreboard since 1938, recently in the San Francisco headquarters.

Continued on page 10

How BIG should a Jordan be?



Battery of Jones Majestic Jordans at Weyerhauser's Longview, Wash., board mill. This popular high-capacity machine accounts for a large percentage of Jones Jordan sales.

Big enough to do the job required of it! — and the Jones line of eight sizes, from Midget to Leviathan permits selection of exactly the right size and type to meet every requirement.

Built into *all* Jones Jordans are exclusive features developed from more than a century of service to paper mills, which provide maximum operating efficiency, ease of maintenance and low operating cost.

Ask your Jones representative for more information, or write today for Bulletin EDJ-1007A.

E.D. Jones

E. D. Jones & Sons Company
Pittsfield, Massachusetts

BUILDERS OF QUALITY STOCK PREPARATION EQUIPMENT

In Canada: The Alexander Flook Limited, Ottawa

"Ne Plus Ultra" OF PROCESS CONTROL

THE *Ultravalve*

Incorporating all the features of special Hammel-Dahl valves used on the most dangerous applications . . .

Now the STANDARD 1000 SERIES of the H-D control valve line.

COMPLETE Information in H-D Bulletin 103-B

HAMMEL-DAHL COMPANY

175 POST ROAD, (WARWICK) PROVIDENCE 5, R. I., U. S. A.

SALES OFFICES IN ALL PRINCIPAL CITIES

MANUFACTURING PLANTS IN WARWICK, R. I., U. S. A., CANADA, ENGLAND, FRANCE AND HOLLAND

CANADIAN MANUFACTURING AFFILIATE—GUELPH ENGINEERING CO., GUELPH, ONT.

In the next 4 years...

Will your condensate return lines

Look like this . . .
Section of condensate line, removed after four years of plant service, shows excellent corrosion protection obtained with Nalco 35.

. . . Or like this?
In the four years before Nalco 35 was used, untreated condensate lines in the same plant were seriously damaged by corrosion and pitting.

TWO *Nalco* METHODS FOR POSITIVE CONDENSATE CORROSION PREVENTION

1 *Nalco* 35 PREVENTS CORROSION BY pH CONTROL

Nalco 35 controls pH in the condensate return system... neutralizes carbon dioxide to assure corrosion prevention. Especially recommended for low make-up systems, Nalco 35 vaporizes and condenses with the steam, *and at the same rate.* Uniform treatment concentration is assured throughout the system; and long-lasting Nalco 35 makes positive return-line, tank, and valve protection a real operating economy.

2 *Nalco* 35 FM PREVENTS CORROSION BY PROTECTIVE FILM

Nalco 35 FM protects metals in steam systems by forming a tough, rustproof microscopic film on all exposed surfaces. Corrosive gases and liquids cannot reach the metal surface to cause damage.

Nalco 35 FM is fed with a low-cost Nalco condenser-feeder, or any good chemical pump, directly into steam or condensate lines. Once your steam system has protection of Nalco 35 FM film, low dosages maintain film permanently.

NATIONAL ALUMINATE CORPORATION
6213 West 66th Place • Chicago 38, Illinois
In Canada: Alchem Limited, Burlington, Ontario

THE *Nalco*®

SYSTEM . . . Serving Industry through Practical Applied Science

PERSONALS — Continued

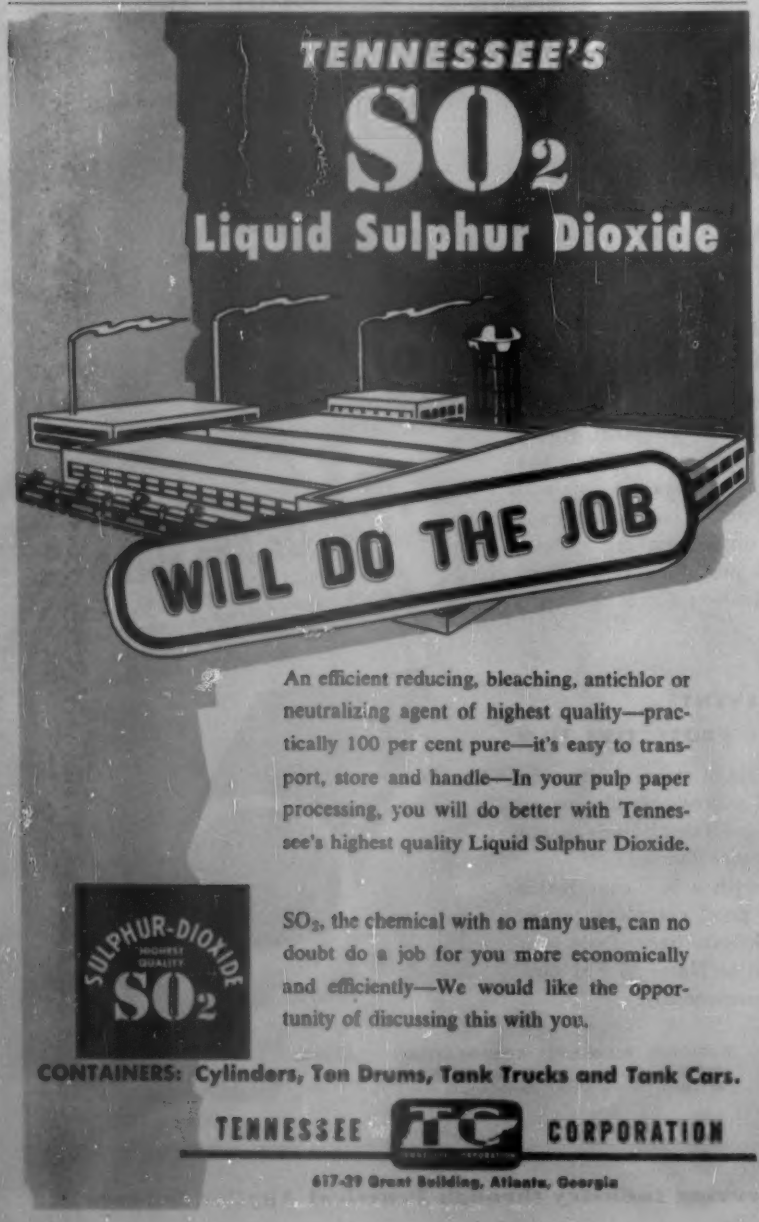
NORTHEAST NEWS

Thompson with Rhodia; Wilson on Village Board

WARREN B. THOMPSON, formerly with DuPont, is Middle Atlantic states sales rep. for Rhodia, Inc., New York, which markets Alamask, former DuPont product for mill odor abatement.

ALBERT E. WILSON, assistant secretary, Sandy Hill Iron & Brass Works, Hudson Falls, N. Y., has been elected to the Hudson Falls village board of trustees. He was with Imperial Paper & Color Corp. before joining Sandy Hill in 1945. The Wilsons have seven children, six of whom graduated from high school with honors, one still in school.

DONALD A. (PAT) MORAN has resigned as resident manager of St. Regis's mill at Deferiet, N. Y. He will continue as a consultant on the staff of W. R. Adams, vice president in charge of manufacturing, until Apr. 1, 1955.


TENNESSEE'S
SO2
Liquid Sulphur Dioxide
WILL DO THE JOB
An efficient reducing, bleaching, antichlor or neutralizing agent of highest quality—practically 100 per cent pure—it's easy to transport, store and handle—In your pulp paper processing, you will do better with Tennessee's highest quality Liquid Sulphur Dioxide.
SULPHUR-DIOXIDE
HIGHEST QUALITY
SO2
SO2, the chemical with so many uses, can no doubt do a job for you more economically and efficiently—We would like the opportunity of discussing this with you.
CONTAINERS: Cylinders, Ton Drums, Tank Trucks and Tank Cars.
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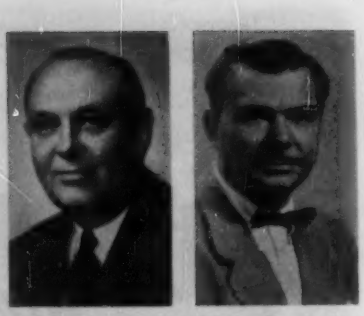
617-27 Grant Building, Atlanta, Georgia



NEW EXECS AT FILER CITY

GORDON B. BONFIELD (left) is Vice Pres. and General Manager of the Filer City (Mich.) Division of American Box Board Co., which under a recent decentralization program is one of two divisions. He is responsible for forestry and wood procurement program and mill sales as well as operations. Mr. Bonfield has been with American Box since 1919 when he started as a machine operator. He became a director in 1945, Manufacturing Manager in 1945, and a Vice Pres. in 1948.

GEORGE DLESK (right) is Operations Manager at the Filer City Division. He joined the company in 1946 as Administrative Engineer and was named Industrial Engineering Manager in 1951 and Manufacturing Manager in 1953.

GEORGE H. RAND is new Divisional Mgr. for the Northern Mills of International Paper Co., it is announced by Stuart E. Kay, Vice Pres. Mr. Rand replaced the late W. D. Maxim. A native of Livermore Falls, Me., Mr. Rand graduated from Bowdoin College and attended the Univ. of Maine. He first joined I-P in 1930; in 1952 he was named Asst. Div. Mgr. of Northern Mills.

MILDRED WEIL, whose dad is NORMAN WEIL, vice president, the W. S. Tyler Co., was married to LOU HUBACK on Oct. 9. Mr. Huback attended Case Tech and Purdue U. and is associated with Mr. Weil, covering paper mills in East N. Y., Northern N. J., Long Island and Western New England. The entire Weil family are Michigan State grads; the new Mrs. Huback a cum laude grad.

ALBANY MEN ON VISIT

Photographed by PULP & PAPER during a New England news tour (l to r): GEORGE E. FITCH, Sales Engineer, Albany Felt Co., GUST JOHANSON, Asst. Supt. Sulfite Div., Penobscot Chemical Fibre Co., and NIELS JUEL LARSON, Paper Mill Engineer, Albany Felt Co. Mr. Larsen, who used to work in paper mills in Norway, France and U. S., celebrated his 25th year with Albany Jan. 1, 1955.

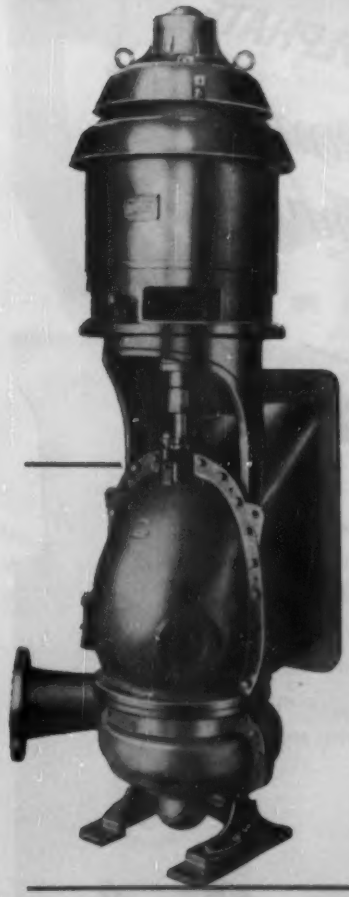
Continued on page 14

THE *Bingham*

"PULP HOG"

FOR DECKER, WASHER OR THICKENER

A STOCK PUMP THAT CANNOT BE AIR-BOUND!



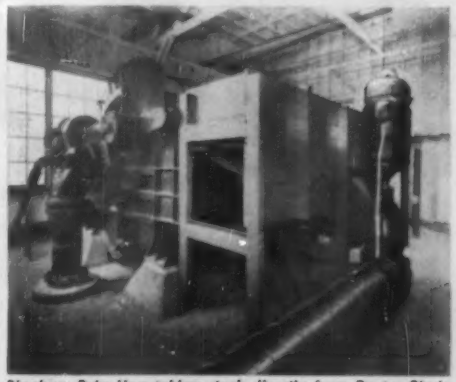
- HANDLES AIR-ENTRAINED PULP
- DISCHARGES PULP AT CONSTANT RATE
- UNINTERRUPTED FLOW INCREASES PRODUCTION
- RELIABLE PERFORMANCE UNDER ALL CONDITIONS

The *patented* Bingham Pulp Hog has been developed particularly for pumping stock containing large volumes of entrained air. This specially-designed pump takes stock from the doctor blades of Deckers, Washers, and Thickeners, and pumps it — without becoming air-bound or clogged — directly into mill system.

The Bingham Pulp Hog is characterized by a *large suction opening* and *non-clogging impeller of the top suction type. Impellers are specially designed to efficiently handle both high and low consistency stock.*

Bingham Pulp Hogs have records of *dependable performance* in major pulp and paper mills throughout the world. For more information call your nearest Bingham office or write for Bulletin No. 26.

- **Permits installation at convenient locations in mill flow line.**
- **Permits use of available floor space regardless of location of storage chest or other equipment.**
- **Operates successfully in basements or on any floor level.**
- **Eliminates need for dump chests.**
- **Substantially reduces building costs.**
- **Reduces operating heads, resulting in power savings.**



Bingham Pulp Hog taking stock directly from Doctor Blade of Washer, Weyerhaeuser Pulp Mill, Everett, Washington.

Bingham
SINCE 1921

DOUBLE VOLUTE
RADIAL BALANCE

BINGHAM PUMP COMPANY

***General Offices:* 2800 N.W. Front Avenue, Portland 10, Oregon**

***Factories:* Portland, Ore. • Vancouver, B.C., Canada**

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For makers of Quality Papers

This is a perfected bleached hardwood sulphate . . . made from carefully selected species of southern hardwood trees which yield the longest and finest hardwood fibre available. Astracel has the excellent forming qualities found in northern hardwoods . . . *plus great strength.* It is produced at Riegel Carolina's new pulp mill at Riegelwood, N. C., with every refinement and control known to modern pulp manufacture.

Riegel Carolina Pulps

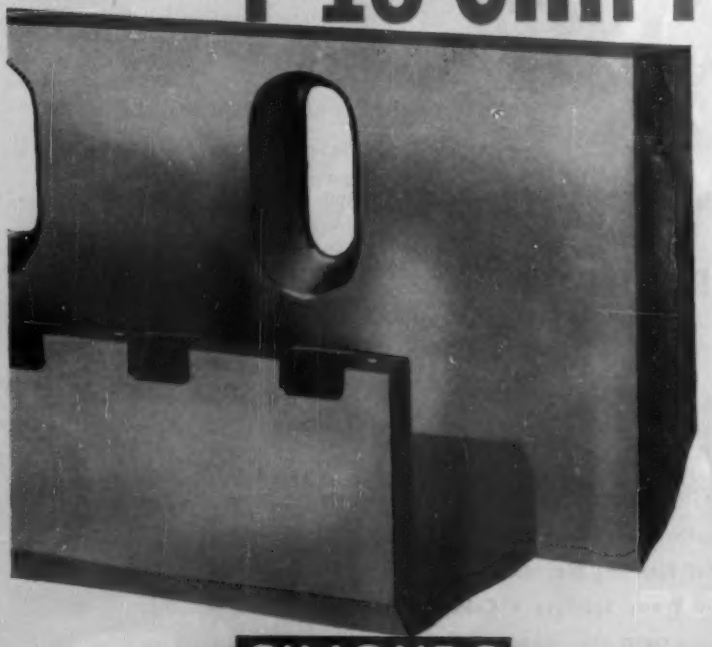
ALBACEL • ASTRACEL

RIEGEL PAPER CORPORATION • 260 MADISON AVENUE • NEW YORK 16, N. Y.

A BRUTE

...But not a Bruiser

SIMONDS T-18 CHIPPER KNIFE



A Simonds Chipper Knife cuts more usable chips — less slivers and dust. Cuts 'em clean and uniform without bruising or mashing which means less waste and more pulp from the cook.

Made of extra tough T-18 Steel, developed and poured in Simonds own Steel Mill, these rugged, shock and abrasion resistant knives are built to take the high speed, brutal beating of chipper operation . . . to hold a keen cutting edge longer.

So for better chips, and more of them between sharpenings — get a set of Simonds Chipper Knives through your Industrial Supply Distributor today.

SIMONDS SAW AND STEEL CO.
FITCHBURG, MASS.

For Fast Service from Complete Stocks
Call your SIMONDS Industrial Supply DISTRIBUTOR

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon • Canadian Factory in Montreal, Que. • Simonds Divisions: Simonds Steel Mill, Lockport, N. Y. • Simonds Abrasive Co., Phila., Pa. and Arvida, Que., Canada

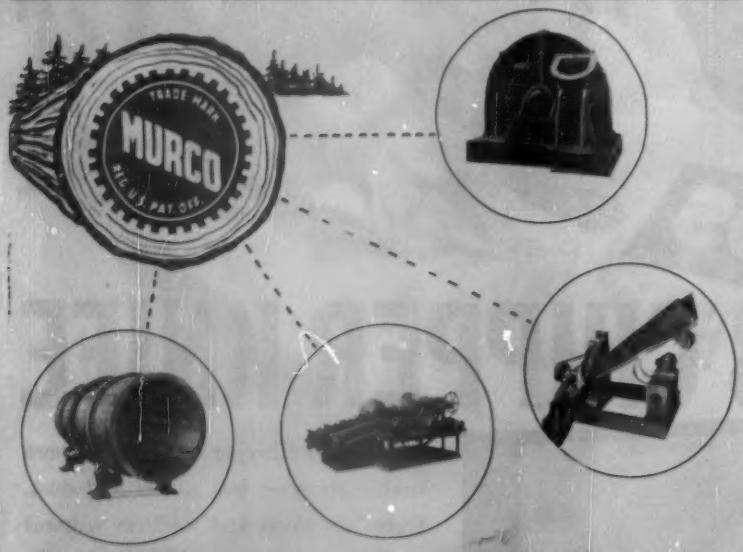
PULP & PAPER PERSONALS — Continued

NORTHEAST NOTES

CHARLES A. CASS, 74, closed his career of 52 years with West Virginia Pulp & Paper recently when he resigned as a director. He joined as a salesman in 1902 after graduating from Princeton.

GEORGE F. BRYANT, formerly ass't. to marketing manager, Union Bag Corp., moved with his family to Framingham, Mass., where he will be assistant to technical director, Angier Corp.

CLARENCE F. KINGSTON, paper mill supt., Hammermill Paper Co., was elected chairman of the Penjerdel div. of the Supts. Assn. Mr. Kingston recently observed his 40th anniversary with Hammermill. **MORT E. GRAHAM**, secretary, Hammermill Paper Co., was recently nominated for 33rd degree of Masonry, highest degree of that order. **FRED E. BAHRENBURG**, Hammermill's asst. general supt. has announced appointment of **GEORGE F. HARTWELL** as asst. production control mgr.



To the paper industry we offer a specialized service based upon over seventy years close association with the needs of paper manufacturers. Write today for complete catalog information on any items in which you are interested . . . no obligation for our Engineering Department recommendations.

a Specialized Service
to the
PAPER INDUSTRY
• ENGINEERING • PATTERN MAKING • MODERN MACHINE SHOP AND FOUNDRY OPERATIONS

OTHER MURCO EQUIPMENT

• High Speed Waste Wood Chippers • Multiple Knife Chipper Discs • Knot Screens • Knot Drills • Chip Crushers • Double-Deck Chip Screens • Quick Opening Gate Valves • Roll Heading Machines • Hydraulic Roll Lowering Tables • Hydraulic Wood Splitters • Collard Winder Shafts • GRID Unit Heaters • GRID Blast Coils

D. J. MURRAY MANUFACTURING CO
Manufacturers Since 1913 WAUSAU · WISCONSIN

NEW SALES REPRESENTATIVES

RICHARD F. GRAHAM (left), Sales Rep. for Hooker Electrochemical Co., Wilmington, Calif., according to Horace W. Hooker, Western Sales Mgr. Mr. Graham was a graduate of University of Washington, formerly was with the Weyerhaeuser Pulp Division at Longview, Wash.

JAMES D. BROWN (right), new Sales Rep., Paper and Pulp Dept., Jackson & Church Co., Saginaw, Mich. A U. of Toronto graduate, also studied at Appleton Institute. Was formerly with Sutherland Refiner and Sprout-Waldron Co.

LESTER J. SMITH remains as general superintendent in charge of the manufacturing operations at Deferiet. No replacement for manager is contemplated for the time being. Mr. Adams has appointed **A. T. EASLEY** as his personal representative in Deferiet for public and division liaison.

WILLIAM D. MAXIM, division mgr. of all Northern mills of International Paper Co., and pres. of the Indian River Power Co., died Nov. 21 in Glens Falls, N. Y., following a brief illness. His association with IP extended over 45 years.

DAVID W. STAPLETON, formerly general manager with Udylite Corp., Detroit, Mich., has been appointed executive vice president, Stowe-Woodward.

NEW ZEALAND NEWS

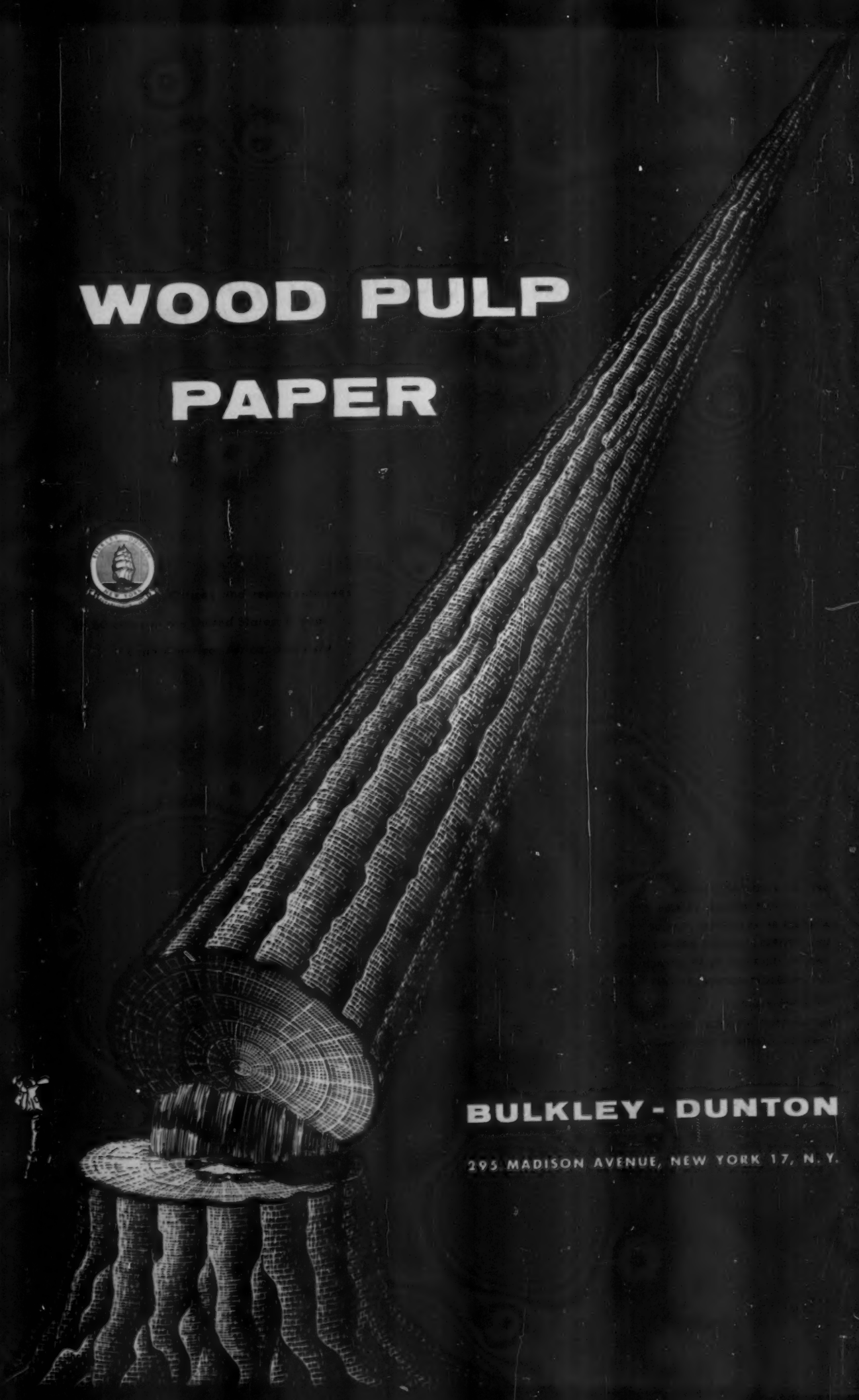
SIR DAVID HENRY, chairman of the board, N.Z. Forest Products, Ltd., in New Zealand, was recently honored by more than 400 members of his staff at Penrose and Kinleith in recognition of his pioneering the exotic forest industries of that country.

F. H. MADDOX, managing director, Harland Drives, Ltd., after visiting mills in Canada, U.S. and Mexico, went to New Zealand, where one of his company's drives is in N.Z. Forest Products, while three more are on order to Tasman Pulp & Paper Co.

R. BARLOW, for four years resident engineer at Kinleith for New Zealand Forest Products Ltd., has been appointed superintendent-engineer at that mill. **NORMAN B. MANSSEN** has joined the company as chief engineer of new projects.

Continued on page 18

WOOD PULP
PAPER



BULKLEY - DUNTON

295 MADISON AVENUE, NEW YORK 17, N. Y.

DOWNINGTOWN

Celebrates their **75** *Years of Progress*

in

PAPER MACHINERY MANUFACTURE

1880-1955

It is generally agreed that in the last 75 years greater progress has been made in the manufacture of paper and board products than was accomplished in the preceding 2000 years. Downingtown, this year celebrating its 75th Anniversary, has been continually in the forefront of this progress, contributing many "firsts" to improve quality, speed production and lower costs in the great American paper industry.

Downingtown is dedicated to continue these contributions this year and in many years to come.
Downingtown Manufacturing Co.
Downingtown, Pa.

DOWNINGTOWN

DESIGNERS AND BUILDERS OF PAPER, BOARD AND FELT MACHINES

75 *th year*

West Coast Subsidiary:
MONARCH FORGE & MACHINE WORKS, Portland 10, Oregon

Representatives: UNITED STATES MACHINERY CO., INC., 90 Broad St., New York 4, N.Y., JOHN V. BODLUND, Pacific Building, Portland 4, Oregon, THE EMERSON MFG. CO., Lawrence, Mass., KOENNING-WATERBURY, LTD., Brantford, Ont., Canada

PACIFIC COAST NEWS

Julien keeps in "Limit"; Law Moves to Frisco

DONALD B. LAW, assistant purchasing agent of Crown Z's Seattle office, has been transferred to San Francisco headquarters office as resident purchasing agent.

JAMES R. NORRIS, formerly technical assistant to multiwall bag superintendent, CZ Port Townsend, is promoted to senior engineer.

EINAR W. ERICKSON, assistant vice pres., Crown Zellerbach headquarters manufacturing division, has had 35 years, many spent in Port Townsend as manager. Two 25-yr. men are BURNETT POPE, yard supt., West Linn, MILES CADY, maintenance supervisor, Camas, and DOUG WADDELL, tech. supervisor, Lebanon, Ore.

IF YOU WANT IT FABRICATED

NWC's YOUR MAN

Northwest Copper Works is the pioneer fabricator of Stainless Steel for the Paper Industry...SERVICE is a by-word...FOLLOW-THROUGH is a Must...GUARANTEED SATISFACTION means what it says.

14" Swing Check Valves with Surge Pots, for Northwest Paper Mill.

Specializing in:

- Stainless Steel Products
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- Lead Linings
- Lead Burning

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PHONE MURDOCK 2191

IN PACIFIC COAST NEWS

WILLARD E. OSBORNE (left), working out of Tacoma, Wash., has been given sales responsibility for entire Pacific Coast for Improved Machinery Inc., according to John Rich, President. Mr. Osborne went west from Nashua, N.H., headquarters of the company three years ago to serve at first as Service Engineer, later as Sales and Service Engineer.
ALBERT E. GEDMAN (right), Field Service Engineer is now permanently located on Pacific Coast for F. C. Huyck & Sons (his home—20 N.W. 16th St., Portland, Ore.). Huyck has two men now in the west, the Tech. Sales Rep. being Roy W. Keller, formerly of Pacific Coast Supply. Irving H. Peters, Huyck Mgr. of Field Service, said it would enable Huyck to maintain the best possible service in the Far West. Mr. Gedman is a graduate of Clarkson College, formerly was with Scott Paper.

G. M. JULIEN, assistant to Res. Mgr. GEO. GALLAWAY of Crown Z, Camas, Wash., has rounded out 40 years there and probably hasn't added a pound of weight to his trim torso in all time.

L. H. BRANTLEY, former carton supt. of San Joaquin div., will be Fibreboard Products new carton plant supt. in the factory being built now in Denver, Colo.

JAMES D. MORAN, is new assistant to Vice Pres. and Gen. Mgr. GEORGE J. PECARO at Flintkote's Los Angeles operations. He came from New York. New technical director is FRED HANEY, who joined Flintkoet a year ago after being Southern California rep. for Laboratory Equipment Co. He succeeds BILL MOORE, who becomes asst. to research director in Flintkote's central labs in New Jersey.

BURNETTE HENRY, former board plant supt. at U. S. Gypsum's Plaster City, Calif., plant, is new production engineer for board mills in Chicago western headquarters.

JAMES E. PEAKE, pulp tour foreman at Longview Fibre Co., died Nov. 30, at Longview, Wash. He was 53 years old and had been with Longfibre 25 years.

HERBERT S. BOYD, gen. maintenance supt. for Fibreboard in Port Angeles, Wash., has a new fire-engine red Buick. Seattle native, he joined Fibreboard in 1936.

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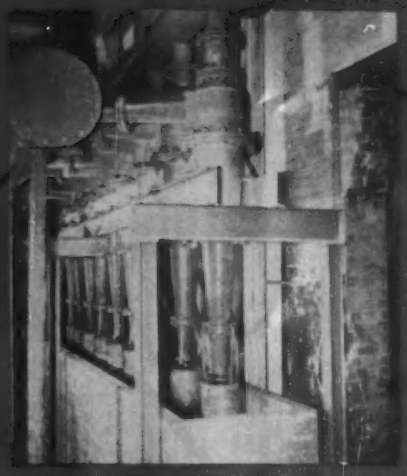


Bauer

BAUER CLEANERS

remove more than soil and sand

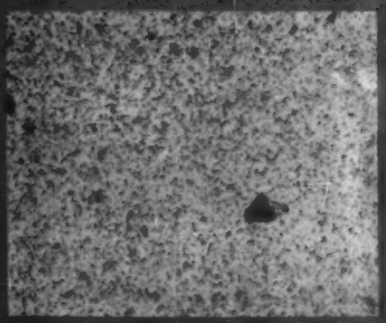
Since particles of high specific gravity naturally settle from water suspension, fibre removal from pulp slurry is easy. But Bauer Cleaners recognize other kinds of debris in pulp—particles of different shape from fibers.

So the rejects from Bauer Cleaners are not only soil and sand, but also pieces of bark, shives, slivers, and miscellaneous refuse.

You can readily see these dregs in sheets made from Bauer Cleaner rejects. We'll be glad to show you a number of samples, as well as sheets made from accepted stock. The evidence is amazing.

Photograph shows a hand sheet made from Bauer Cleaner final rejects. Feels like sandpaper!

Ask to see samples. The coupon can be used.



THE BAUER BROS. CO.

1714 SHERIDAN AVE. • SPRINGFIELD, OHIO

Show me sample sheets made from Bauer Cleaner rejects and accepted stock.

(Individual and Title)

(Company)

(Street Address or Box)

(City, Zone, State)

Exclusive **Nose Baffle**

Keeps B&W Recovery Units

ON THE LINE LONGER

Forced outages and down time are expensive in terms of both lost production and costs involved in getting recovery units back on the line. Keeping those costly, *non-productive periods few and far between,—to clean and remove smelt deposits—* is the job of the NOSE BAFFLE found *exclusively* in B&W Recovery Units.

PROBLEM—How to shield the ash deposits on the superheater from the radiant heat of the furnace, and direct the flow of high-temperature gas from the furnace so that all of the gas is cooled to the same degree before entering the superheater. The function of the Nose Baffle is to solve this problem.

RESULT—Through the use of the B&W Nose Baffle, ash deposits in zone where superheater tubes are closely spaced are soft, powdery and easily removed. The B&W Nose Baffle cuts frequent, difficult cleaning to the minimum and completely eliminates cleaning outages. Lower operating cost may be realized from lower temperatures, improved cleaning and continuous operation. The B&W Unit stays on the line longer.

And high availability is one of the many benefits of a B&W Recovery Unit. For nearly 20 years B&W Recovery Units have demonstrated economical operation and high availability in leading pulp and paper mills. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

P-706

BABCOCK & WILCOX

BOILER DIVISION

PUT YOUR WHITEWATER ...IN THE CLEAR!

● **Make your SAVEALL really save—**

For greater operating efficiency, use Swift's NEW PROCESS Glue in your flotation saveall system. This combination recovers valuable solids economically around the clock. Easy to use, uniform, reliable.

Used in your saveall, the unique colloidal action of Swift's NEW PROCESS Glue can be quickly noticed. Clearer effluents, higher recovery mean savings in stock, water, time, labor and money that help your saveall pay dividends.

● **IMPROVED BRIGHTNESS AND OPACITY— DENSER, MORE UNIFORM SHEETS—DEEPER COLORS**

Swift's NEW PROCESS Glue, used to help retain valuable titanium dioxide and clays on the sheets . . . fiber and filler on the wire, is as effective as it is economical. Its unusual crystalline structure quickly absorbs water. Its high colloidal action goes to work *instantly*, even when used at low concentrations, to improve brightness and opacity . . . to aid in the production of denser, smoother and more uniform sheets and deeper colors.

Find out more about Swift's NEW PROCESS Glue. An informative bulletin outlining formulae, equipment and instructions for these and other uses is available to you without obligation. Write for details and remember...

ONE TRIAL IS BETTER THAN A THOUSAND CLAIMS

OTHER IMPORTANT PAPER MILL USES FOR SWIFT'S NEW PROCESS GLUE

- *For machine coating*
- *For creping of facial and toilet tissues and paper napkins*
- *For improved pick test*

Call Swift for GLUES

Another of Swift's Products for Industry

USE THIS COUPON FOR FURTHER INFORMATION

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Chicago 9, Illinois

Please send your latest bulletin on *Swift's New Process Glue.*

Name of Company _____

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City _____ *Zone* ____ *State* _____

Your Name and Position _____

PULP & PAPER PERSONALS — Continued

PACIFIC COAST NOTES

HUGH OSBORNE, new Pacific Coast mgr. of Lockport Felt Co., Portland, Ore., became a father again—he and wife Carol greeted Michael Hugh on Nov. 12 Richard, first boy, is 18 mos. old. Maternal grandpa is ELMER SIMPSON of Crown Z insurance dept., San Francisco headquarters.

ARCHIE J. HOOFER, hydro-electric and transmission line supt. for CZ, Pt. Angeles, Wash., retired after 33 years' service. He had a colorful career in electrical construction throughout much of North America.

GEORGE H. McGREGOR, new general superintendent of Columbia River Paper Mills, and Mrs. McGregor have taken up residence at Apt. 4, 310 E. 28th St., Vancouver, Wash. Their daughter, Wauna, assistant buyer at Saks 5th Avenue, Chicago, moves to the Coast in December.

TRONA
INDUSTRIAL AND AGRICULTURAL CHEMICALS

...Basic Source of
SALT CAKE
for the World's Largest Kraft Producers

Like other important industries, the great Kraft paper mills of the Pacific Northwest look to the desert at Trona for essential chemicals—in this case, SALT CAKE of highest purity, for which we are their principal source of supply.

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Offices • 3030 West Sixth Street, Los Angeles 54, California
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Plants • Trona and Los Angeles, California

IN THE SOUTH FOR CYANAMID

ALLYN (RED) SKELTON (left), is right hand man to Ken Youngchild, American Cyanamid's Regional Mgr. at its 161 St. Michael St., Mobile, Ala., office. Don't be deceived because camera snipped off the Red top—he uses a comb, not Chemtone! Born in Duluth, he graduated from Minnesota, worked with Northwest Paper Co., has been with Cyanamid since 1947.

WILLIAM BEAUCHEF (right), another aide to Mr. Youngchild at Mobile, is taking up duties in Cyanamid office at Charlotte, S.C., where he joins Ranny Meade. Born in N. Y. City, Mr. Beauchef is a Duke grad, joined Cyanamid in 1953.

E. PAUL DUNCAN, new Hooker technical service rep. in the west, is stationed at the Tacoma, Wash., plant, his native town. He is a graduate of Pomona College and served in the medical corps in France in the war. He joined Hooker permanently a year ago, now serves under ROBERT E. NOBLE, tech. service supervisor.

SOUTHERN NEWS

Taylor Accepts Plaque; Miller is Acting Supt.

BOB MILLER, asst. supt. of Fleming & Sons, Inc., Dallas, Tex., has been acting supt. here since J. C. PLUMLEE left to join The Bauer Bros. Co., in Ohio.

AUBREY L. TAYLOR, plant manager, National Container Corp., Big Island, Va., accepted proudly an engraved plaque from Employers Mutual, its compensation insurance carrier, for an unbroken safety record running since Aug. 1953.

CHARLES D. MASSENGILL, chief electrician of the Kingsport, Tenn., mill of Mead Corp., was named to that city's board of electrical examiners to pass on wiring business applications.

WILLIAM A. DAVIS, JR., of Charlotte, N. C., is new representative of Vulcan Copper & Supply Co., in the Southeast states. He is an m. e. grad of Duke and did graduate work at Minnesota.

DON SCHWIER, formerly with Detroit Sulphite, is new asst. sales mgr. for Crossett Paper Mills.

Continued on page 26

prime pulps
for perfect papers
TELEGRAMS:
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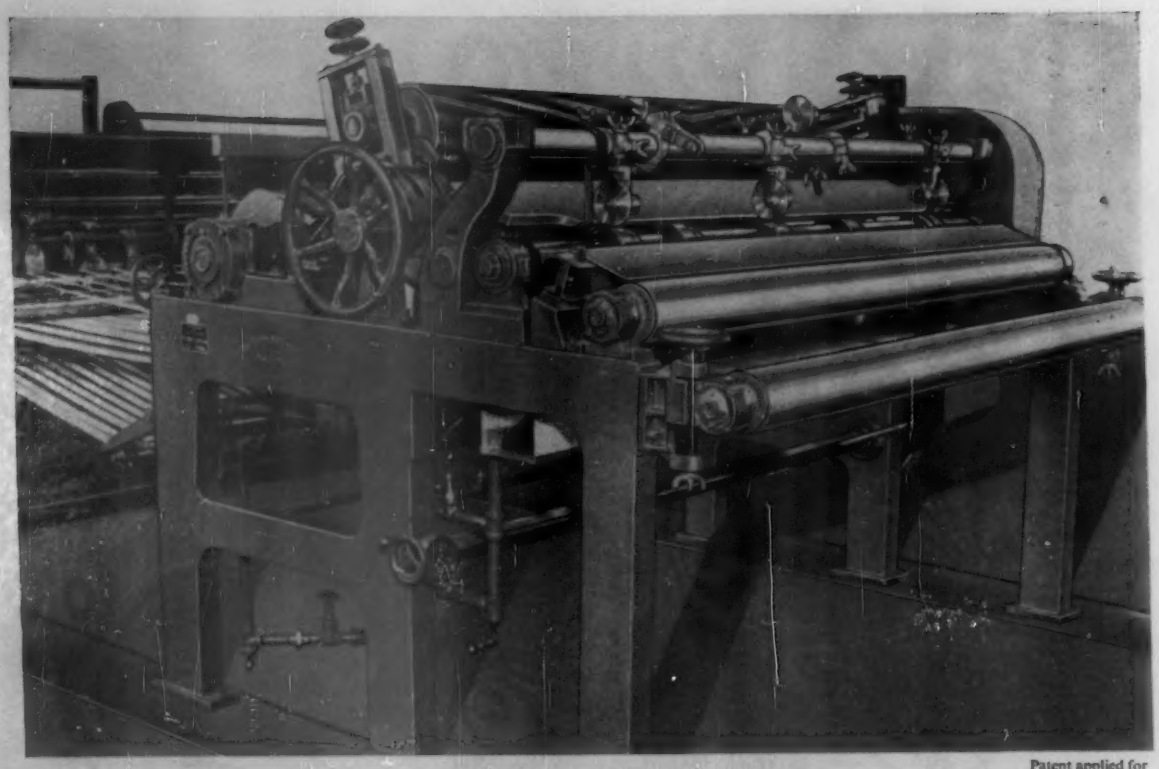


Patent applied for

Cuts untrimmed papers within trade-custom accuracy!

MOORE & WHITE HEAVY DUTY SIMPLEX CUTTER

SHEET LENGTH ACCURACY. For practically all normal operations we can guarantee to cut untrimmed papers within trade-custom accuracy, and maintain the squareness of the sheet. In many instances paper can be taken from the cutter with the same tolerances as are allowed for 4-sided guillotine-trimmed paper.

KNIFE LOAD. This cutter can cut loads (sheets of paper) that could not be cut in the past. This is due to the special M&W construction of revolving and bed knives. The cutter will take a heavy load, cut and slit it accurately and continuously, and pile up high production runs. It means minimum down-time and continuous runs at high speeds — performance that counts.

SHEET LENGTH RANGE. The Moore & White Heavy Duty Simplex Cutter has a standard sheet length range of 18 to 72 inches. Other ranges can be obtained if required. Sheet length changes within the range are made quickly and positively by means of a single hand wheel on the tending side of the cutter.

CUTTER DRIVE. This is generally a variable speed electric drive complete with jogging and dynamic braking. The main electric drive and the P.I.V. can be furnished either inside the main frames of the cutter or outside the frames on the drive side.

SAFETY FEATURES. The revolving knife gear chain has an automatic safety key so that in the event of a "ball-up" the safety key will shear and allow the shaft to run free. New safety keys are quickly and easily installed.

DUAL DRAW ROLLS (optional feature). Exclusive with Moore & White. An additional squeeze roll and drum roll assembly, mounted ahead of the slitter part, does the actual drawing of paper from backstands. This eliminates slipping and insures accurate cutting — is advantageous in long draws and multi-sheet operation.

AIR CONTROL (optional feature). To eliminate "ball-ups," the sheet flow through the cutter is controlled by means of a special air arrangement from the draw rolls to the tapes. Moore & White pre-delivery tapes are specially mounted to carry the sheets to the main carrying tapes.

Additional Models

We also offer a duplex cutter which cuts two different sheet lengths from a single web of paper. And a special M&W rotary sheet cutter without the slitter part. For wide widths, there is another model of simplex rotary sheet cutter with larger, heavier framing, larger diameter rolls, larger diameter revolving knife body—a much bigger cutter. In addition, we furnish a cutter for heavy pulp and specialties.

These are all operators' cutters — simple, accurate, dependable, high production. Write us today for full details.

The MOORE & WHITE Company
15th Street and Lehigh Avenue · Philadelphia 32, Pa.
CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD
In the New England states, Moore & White is represented by Orton Corp., Fitchburg, Mass.

THE MEAD SALES COMPANY
230 PARK AVENUE, NEW YORK 17, N. Y.
20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

MEAD
pulp

DISTRIBUTORS OF WOOD PULP
BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP

To clean up the dead brush that was such a fire hazard in the North Woods, Paul Bunyan used to run his fingers through the evergreen forests as you'd run a comb through your hair.

A reproduction of this incident from the fabulous life of Paul Bunyan—the eighth of a series—will be sent on request.

STOP THE THREAT OF CORROSION WITH TRUSCON "Speed Rex"

Provides Tough, Resistant Paint Film For Metal, Wood And Concrete Surfaces

You can lick the corrosion problems caused by condensation with "Speed Rex" . . . the *toughest* all-purpose coating you can find for machinery, tools, conveyors, benches, guard rails and most other plant equipment.

And "Speed Rex" resists *hard knocks* as well as chemicals and moisture. You paint less often when you standardize on "Speed Rex" because rough, tough physical abuse bounces off the rugged hide of this protective coating.

The reason "Speed Rex" can take so much punishment is Devran . . . an Epoxy Resin that gives paint greater wear-ability and resistance to corrosive chemicals.

It's Alive! It's Devran!

If you were to bounce a solid ball of Devran, or drive it with a golf club, you'd see how "alive" it is. It's this *lively toughness* that enables Speed Rex to bounce back after absorbing the roughest kind of industrial treatment. Get the full details on work-saving Speed Rex from your Truscon Sales Engineer. Or write for literature . . . now!

***Maintenance Problem?* TELL IT TO TRUSCON!**

TRUSCON Laboratories
Division of Devoe & Raynolds Co., Inc., Detroit 11, Michigan

PULP & PAPER

PERSONAL—Continued

J. E. McCAFFREY has been elected a vice president of International Paper Co., following by 4 months his appointment as asst. gen. mgr. in charge of woodlands operations, Southern Kraft Division. He had been woodlands div. supt. at Georgetown, S. C.

GEORGE A. DAVIS at Houston, Tex., and **THOMAS J. BRENNAN,** at Charlotte, N. C., are new representatives in those areas for Carpenter Steel Co.'s Alloy Tube Div., Union N. J. Mr. Davis, from New England, succeeded Mr. Brennan in Texas.

ERNIE LAMBTON, safety engineer for St. Regis at Jacksonville, Fla., recently died.

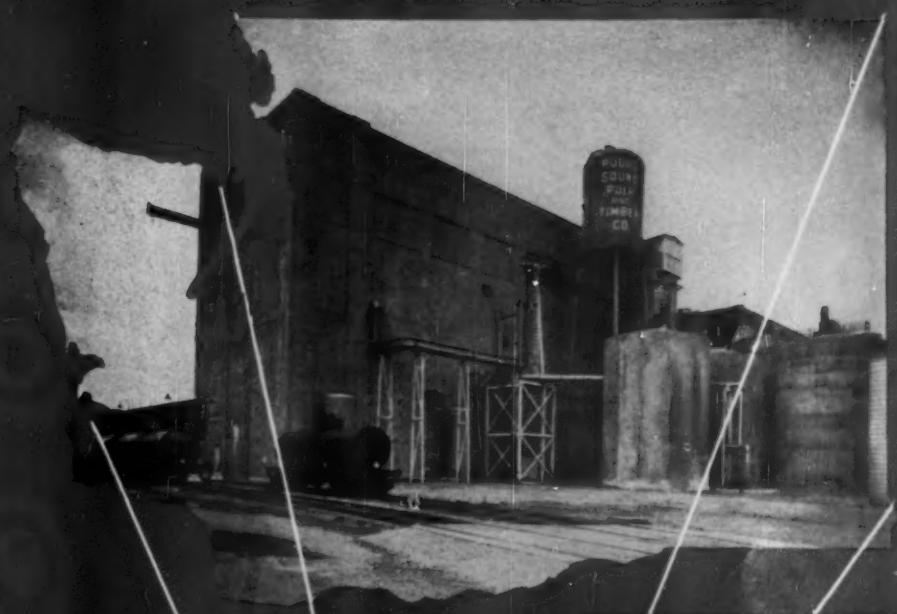
Draper, Aid to Griffiths

Al A. Hory, Jr., formerly with International Paper Co., has joined Draper Brothers Co., felt manufacturers, Canton, Mass., and will assist L. L. (Buster) Griffiths as representative for that company in the South, according to Ralph E. Briggs, sales manager.

Mr. Hory lives at 10 Elizabeth Place, Mobile, Ala., and was formerly with International Paper at its new container plant in Wooster, O., and in sales work in Michigan. He was born in New York City.

MT. HOPE SALES CHIEF

WILLIAM M. GALLAHUE (left) is new General Sales Mgr. of Mount Hope Machinery Co., Taunton, Mass., originator of the Free-Wheeling Expander now widely used in the paper industry. His addition to the management staff, according to Mount Hope, will enable WALTER MURRAY (right), Technical Sales Director, to devote full time to customer relations and field engineering. Mr. Gallahue had made an outstanding record as Industrial Sales Mgr. of American Machine & Foundry Co.'s Electronic Division. Previously he was District Sales Mgr. of Lord Mfg. Co. A Yale graduate, he was later a captain in the U. S. Air Force and Chief Engineer at a B-29 depot in Kansas three years, earning the Meritorious Award for efficiency.

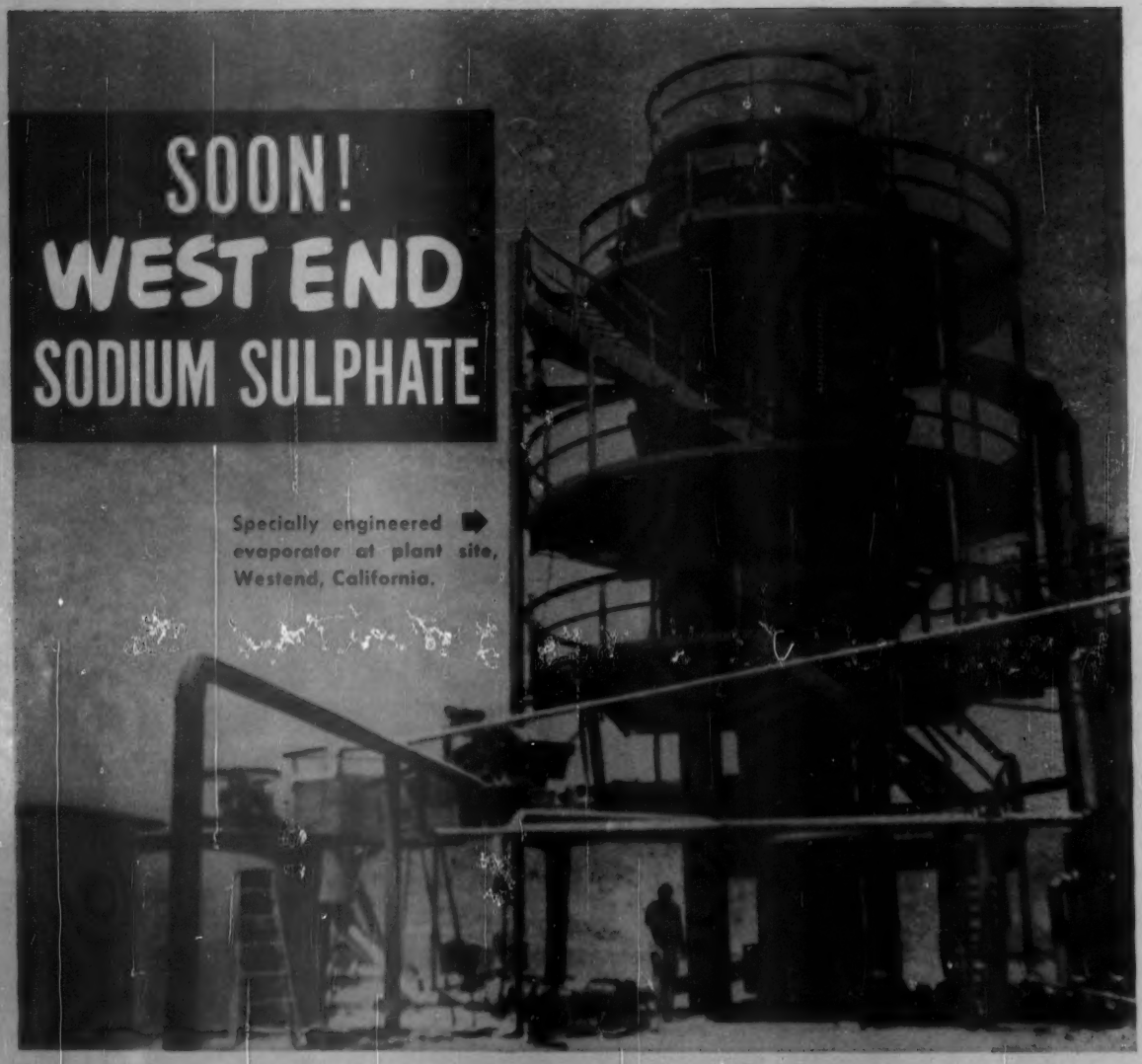


PUGET PULP—the *whitest, cleanest, bleached sulphite pulp* that we can make is produced *particularly for the market.* To assure converting mills of top quality, Puget management is always testing new processes, always alert to improved methods, always ready to install new designs in equipment. *Gear your operations to* **PUGET PULP.**

PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM · WASHINGTON



New plant now under construction to tap rich natural source of sodium sulphate

West End Chemical Company will start producing salt cake and anhydrous sodium sulphate by approximately mid-summer, 1955, at the rate of 50,000 tons annually. Output will be geared to serve the national market. Production can be stepped up at any time. The natural brine deposits at Searles Lake, California, will support a production many times this amount.

West End Sodium Sulphate and Salt Cake will be of very high quality. They will be *chemicals* produced by a chemical process in a chemical plant — not by-products.

Inquiries are invited. West End will be pleased to work out freight schedules on salt cake or anhydrous sodium sulphate to any points in the United States in quantities required.

WEST END
CHEMICAL COMPANY
SODA ASH · F. M. SMITH BRAND BORAX · HYDRATED LIME

West End Chemical Co.

Executive offices: 608 Latham Square Building, Oakland 12, California · Plant: Westend, California

You don't have to be a Shakespeare to get in this book!

WHO?

All pulp and paper mill employees are eligible to win one of the **three national prizes** of $1,000, $750 and $500, or one of the **ten divisional** prizes of $100 each.

HOW?

By writing a paper on the subject, "**The Value of Better Mill Communications,**" of 1500 words or less, typed double spaced, on 8½" x 11" sheets. Cover sheet only to include: name, name and location of mill, and position or duties.

WHEN?

Now. All papers must be postmarked before midnight March 31, 1955. Mail to Secretary and Treasurer, The American Pulp and Paper Mill Superintendents Association, 527 So. La Salle St., Chicago 4, Illinois.

Annual Bolton Award Essay Contests are sponsored by **The American Pulp and Paper Mill Superintendents Association.** *The 13 prize-winning papers are published in bound volumes for free distribution "to foster an exchange of ideas on matters of common interest to all persons engaged in the pulp and paper industry."*

-but there's $3,250 in it for those who do!*

Contributed by JOHN W. BOLTON & SONS, INC., Lawrence, Massachusetts, U.S.A.

138 Western Gear Drives

selected for new Ketchikan mill

Aerial view of new Ketchikan Pulp Company mill at Ketchikan, Alaska. Inset shows close-up of one of 138 Western Gear drives used.

WHY? ... because Western Gear drives have established an unequalled reputation for superior performance per dollar of cost. Its remote location forced the new Ketchikan Pulp Company mill, combined effort of the Puget Sound Pulp & Timber Company and the American Viscose Company, to insist on drives designed for automatic operation wherever possible and backed by utmost dependability. Specifications for equipment in the mill demanded latest in design with a proven reputation for efficiency and long life. All the drives requiring reducers from 2 HP to 1250 HP were supplied by Western Gear Works, from the log haul drives to the finishing room and in the yards and on the docks. In addition, Western Gear supplied what is believed to be the first positive drive two-speed log haul with remote pneumatic shifting control.

In the past four decades, Western Gear Works reducers and gear drives have become standard equipment in the mills of the Northwest and more Western Gear speed reducers are in use in these lumber, pulp and paper mills than all other makes combined.

Thos. J. Bannan, President

PLANTS AT LYNWOOD, PASADENA, BELMONT, SAN FRANCISCO (CALIF.)
SEATTLE AND HOUSTON — REPRESENTATIVES IN PRINCIPAL CITIES

For information on how to solve your mill problems, write Western Gear Works, 417 Ninth Avenue South, Seattle 4, Washington.

5446

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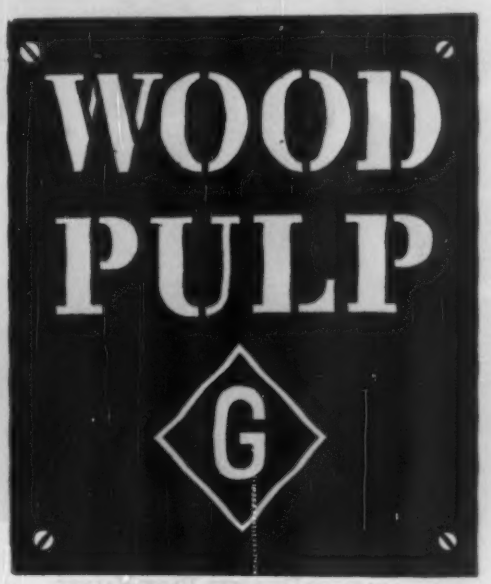
PACIFIC-WESTERN PRODUCTS | POWER TRANSMISSION GEARS • MACHINERY •

PACIFIC GEAR & TOOL WORKS · SOUTH WESTERN GEAR WORKS

Established 1886



"This paper is the history of my knowledge."

SHAKESPEARE

Who could imagine modern life without books, without periodicals, without newspapers, without mail? All human experience is preserved on paper, the product of the Pulp and Paper Industry, and without it this would be a barren world.

GOTTESMAN & COMPANY

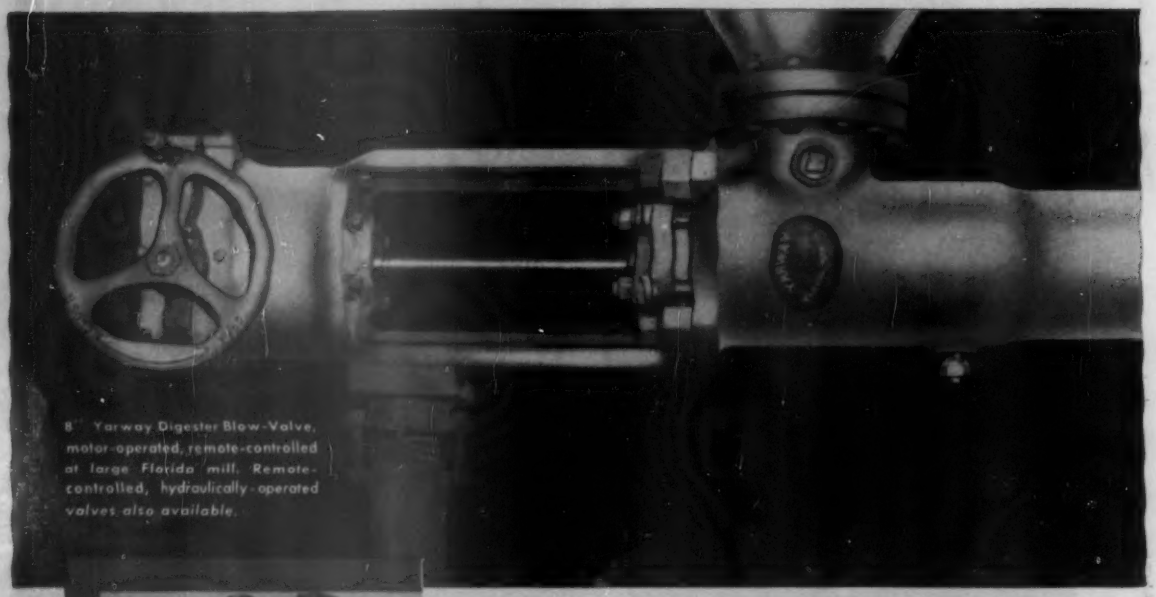
— INCORPORATED —

100 PARK AVENUE • NEW YORK 17, N. Y.

EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

LONG LIVE YARWAY DIGESTER VALVES

. . . with new 17/4 PH Stainless Steel Plungers



8" Yarway Digester Blow-Valve, motor-operated, remote-controlled at large Florida mill. Remote-controlled, hydraulically-operated valves also available.

8" Yarway Seatless Digester Blow-Valve ready for assembly.

NEW YARWAY SEATLESS DIGESTER BLOW-VALVES are better than ever . . . because a new type plunger solves the problem of wear and corrosion always present in digester service.

This 17/4 PH Stainless Steel Plunger has corrosion-resistant properties approaching those of chrome-nickel steel. In addition it has a hardness of 400 Brinell. Hard monel split plunger head bushing also contributes to longer life.

Typical experience has been in a large Florida mill. After 23 months service an 8" Yarway Digester Valve was dismantled for inspection. The 17/4 PH plunger *was in perfect condition—not a scratch on it.* In all that time the packing had not been changed or repacked, and there was *no liquor leakage.* Outage time of digesters has been reduced to a minimum.

Want to know more about these Yarway Seatless *Digester Valves? Write . . .*

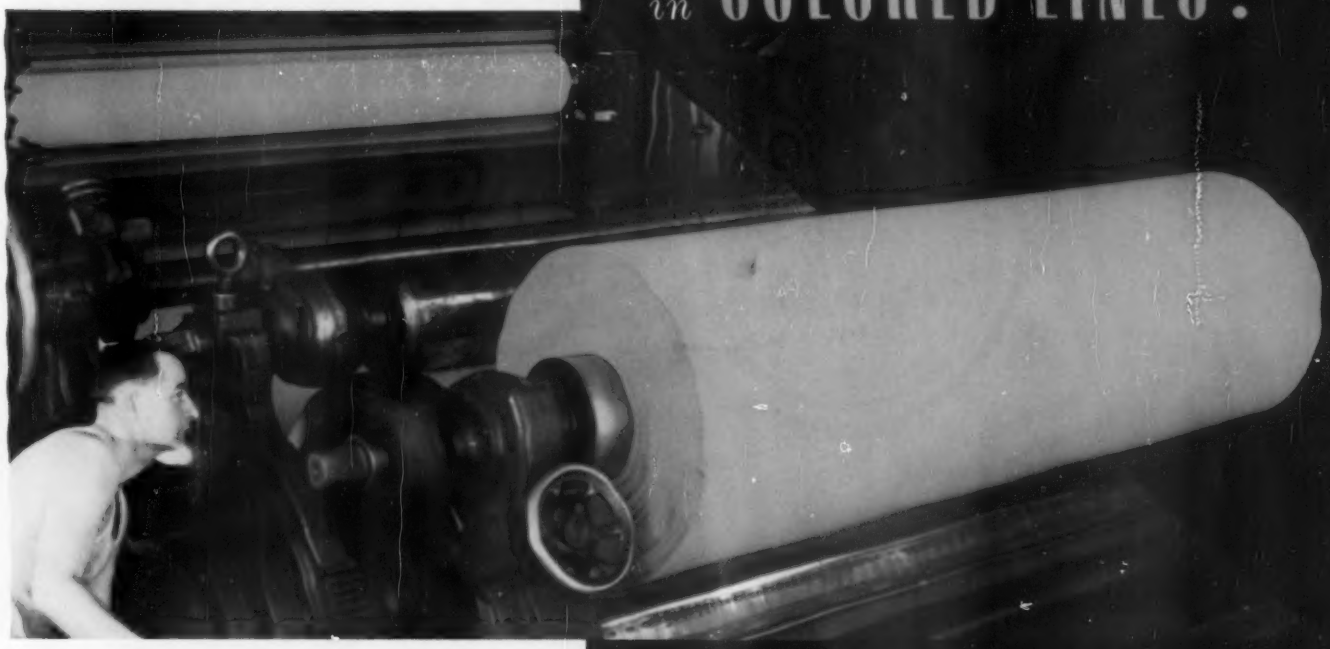
YARNALL-WARING COMPANY
103 Mermaid Avenue, Philadelphia 18, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY

digester blow-valves

Have you recently re-examined the profit potential

in COLORED LINES?



Running colored specialty lines need not introduce complications in your mill operations. With proper formulas and operating methods, colored lines *are now easy to handle* in the mill. And they can add unexpected income compared *to the cost of coloring involved.*

National Technical Service has helped many mills to produce colored lines *efficiently and economically. Our paper* technicians can provide low-cost formulas, stock compositions as well as in-the-mill operating help to get you started.

These services supplement our dependable delivery of the dyes you need from nearby warehouse stocks. They make it easy for you to add color lines now.

NATIONAL PAPER DYES

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco
Portland, Ore. Greensboro Charlotte Richmond Atlanta
Los Angeles Columbus, Ga. New Orleans Chattanooga Toronto

Allied Chemical

Griffith S.D.T. ROLLS

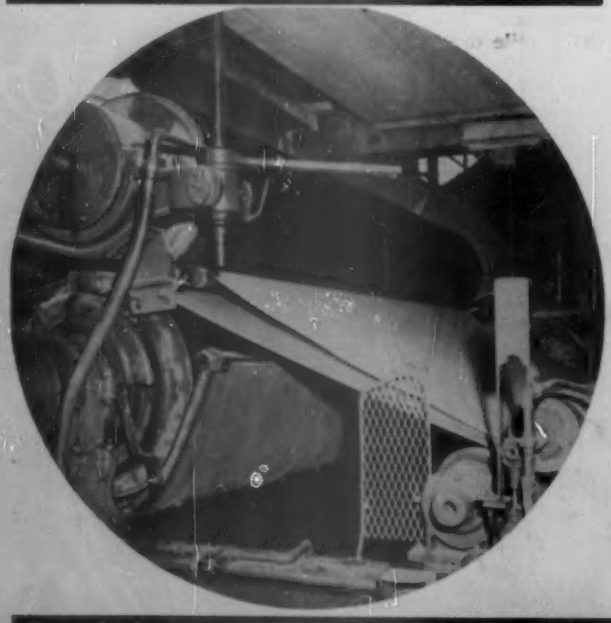
RUBBER COVERED
"Self-Doctoring Topress" Rolls
by
GRIFFITH of Portland

Helps Port Angeles Increase Newsprint Production

- **2% BETTER WATER REMOVAL OUT OF FIRST PRESS**
- **400% LONGER FELT LIFE**

Crown Zellerbach's No. 2 News Machine at Port Angeles, Washington, is equipped with a Beloit Pick-Up Transfer. In over 100 hours of continuous operation (since last start-up) no breaks occurred at this press. Machine speed is in excess of 1,700 feet per minute.

The top roll is resilient GRIFFITH S.D.T. Three other Self-Doctoring Topress Rolls are running in this three-machine mill. (All were purchased separately from GRIFFITH at Portland.)



GRIFFITH S. D. T. Rolls are also running on Kraft and Sulphite machines in many positions from Lumpcrusher to Sizing Presses.

Bottom Suction Rolls are rubber covered and drilled by GRIFFITH at Portland.

Write or Telephone for an Estimate on Your Job

Griffith RUBBER MILLS

2439 N. W. 22nd AVENUE
PHONE: BEacon 7126
PORTLAND 10, OREGON

Rubber Roll Specialists Since 1911

ET means Expert Techniques

There's a *better* way to make pulp and paper.

And the new EASTEX mill was built to take advantage of the expert techniques that make better products.

MARKET PULP

EASTEX is one of the few mills in the nation using the new Mathieson chlorine dioxide bleaching process. Pulp produced by this method is far superior to conventional pulp for exceptional cleanliness and higher brightness, with greater strength retention.

Two Grades—One Quality

You have a choice of two grades of EASTEX pulp: a long-fibered grade made from pine and a short-fibered grade made from gum. Two grades—but one quality—the finest!

BOARD AND PAPER

Here, too, expert techniques produce board and paper of exceptional quality for use in the manufacture of cups, cartons, cans, plates, tags, folders, bags, and many other uses. And EASTEX operations are so versatile that production can be tailored to meet your exact requirements.

Something Extra!

You'll get dependable results with EASTEX—use of a new and revolutionary machine coating gives you industry's finest printing surface.

ET Expert Techniques mean better products for you

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ATLANTIC
GULF
MEXICO
CUBA
JAMAICA
VENEZUELA
COLOMBIA
GUIANA
BRAZIL
BOLIVIA

DORRCO

ON January first of this year, Dorr-Oliver Incorporated became a corporate entity through the merger of The Dorr Company, Engineers and Oliver United Filters Incorporated. Not a merger in name only, the combined staffs, engineering skills and facilities of the two organizations are being welded into a single unit, with a vastly increased capacity to serve on a worldwide basis.

Both companies have their roots in gold ore metallurgy. The Dorr Company was founded by John Van Nostrand Dorr on his early inventions, the first of which was developed in 1904 to solve the problem of mechanical classification of gold ores. Oliver United had its beginning in 1907 with the development of the first successful continuous vacuum filter by Edwin Letts Oliver and its practical application to the cyanide process. Since their inception, both companies have grown steadily in technical stature to positions of leadership in their ever-widening and complementary, fields.

This cumulative, combined experience . . . coupled with a progressive faith in the future . . . is the strength of Dorr-Oliver. For present and future clients alike throughout the world it means better solutions to process problems in those fields of metallurgical, chemical, industrial and sanitational engineering in which Dorr and Oliver have specialized for nearly half a century.

DORR-OLIVER
INCORPORATED
STAMFORD, CONNECTICUT, U. S. A.

Edwin Letts Oliver, Founder and President of Oliver United Filters, at left and John Van Nostrand Dorr, Founder and Chairman of the Board of The Dorr Company, at right. The globe, long symbolic of worldwide operations, stands in the home office of the new corporation in Stamford, Connecticut.

GULF
MEXICO
CUBA
JAMAICA
BRITISH HONDURAS
NICARAGUA
VENEZUELA
CARACAS
COLOMBIA
GUIANA
BRAZIL
BOLIVIA

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Stebbins Linings...

Important in Chlorine Dioxide Bleaching

Approximately 90% of the pulp bleached with chlorine dioxide in plants now operating or under construction will be processed in equipment lined by Stebbins.

Stebbins-lined chlorine dioxide reactors, generators, absorbers, storage tanks and bleach towers, including the very first installation, are giving excellent service.

The pulp industry can depend on Stebbins experience, research, engineering and construction know-how to meet the requirements of new processes.

SINCE 1884
Specialists in Design Installation and Servicing of Linings and Tile Tanks

SEMCO

STEBBINS

Engineering and Manufacturing Company, Watertown, N. Y.

STEBBINS ENGINEERING CORP., 1504 TOWER BLDG., SEATTLE, WASH.
CANADIAN STEBBINS ENGR. & MFG. CO., LTD., CASTLE BLDG., MONTREAL, CANADA

Appleton Twins For Dual Economy

A new Appleton supercalender to increase production. A modern Appleton rewinder for more speed. Team them up for *twice* the efficiency to cope with today's higher costs.

Appleton supercalender illustrated: 150" 12 roll, has shaftless unwind arrangement and automatic roll handling from elevated storage platform. Operates at 1800 f.p.m.

Appleton rewinder illustrated: 150" 2 drum, also ruggedly built, with low center of gravity to assure vibration-free operation. Operates at 3500 f.p.m.

APPLETON MACHINE COMPANY
APPLETON WISCONSIN

CUSTOM BUILDERS OF PULP, PAPER & TEXTILE MACHINERY · CALENDERS · FINISHING ROLLS · REWINDERS · SCREENS · DECKERS

NOW! FISCHER & PORTER'S COMPLETE CENTRALIZED CONTROL INSTRUMENTATION

Includes Data Reduction Systems

Right from the day you recognize the need, Fischer & Porter Company will plan with you for complete process instrumentation. One source, one contract—will take your plans from first stages through to installation.

Fischer & Porter offers you comprehensive control coverage—the finest standard and miniature instruments for most variables... complete design, engineering and construction facilities for any type of panel or cubicle... experienced technical assistance... *and* data reduction and automation systems.

And F & P complete service costs less, because of the complete handling from beginning to end in one plant.

Use all the advantages of automation. Write, call or wire today for complete information and engineering assistance.

F & P is first with a Data Reduction and Automation Division. Now available is a new digital converter, which provides completely automatic logging from sensing elements to coded or tabulated digital data output.

LA-1004

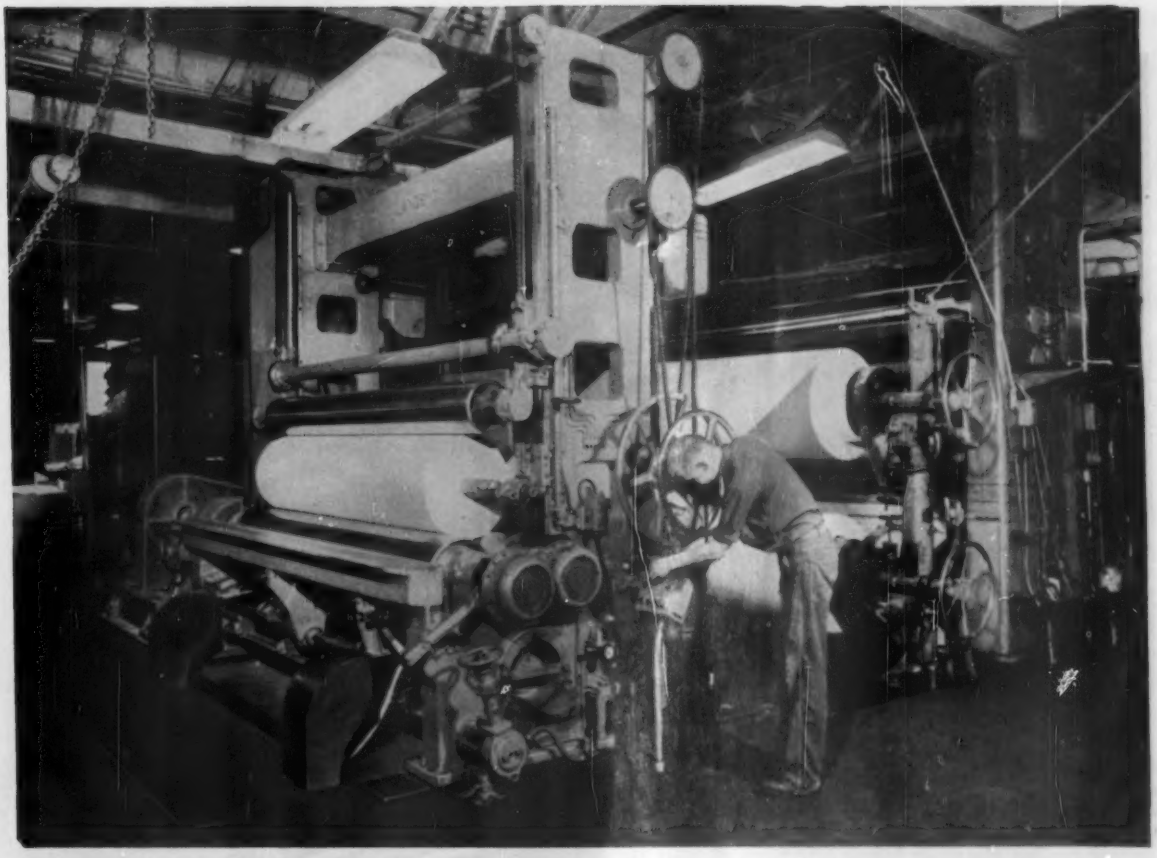
complete process instrumentation

FISCHER & PORTER CO.

2115 County Line Road, Hatboro, Penn.

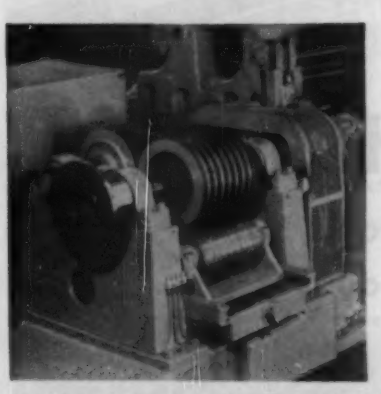
FP

Measuring, Recording, and controlling instruments—Control Panels—Data Reduction Systems—Contract Instrumentation Research—Chlorination Equipment—Glass Specialties.



Typical tough winding job is this fine writing paper handled by Langston Slitter & Winder at Wausau Paper Mills Co., Brokaw, Wis. Engineered controls enable precise adjustment of rider roll pressure and drum overspeed for consistent, optimum roll density.

Facts about roll density and **Langston Slitters & Winders**



Variable pitch sheave is adjustable on high speed Langston Winders to vary overspeeds of rear drum and rider roll simultaneously. Because they are quiet, require little maintenance, and are more efficient than flat belts, only V-belts are used on Langston Winders.

Wind a roll too tight, and it may burst or buckle. Too loose, and it may telescope. There is an ideal roll density for each thickness and strength of paper—which Langston Slitters & Winders are designed to provide.

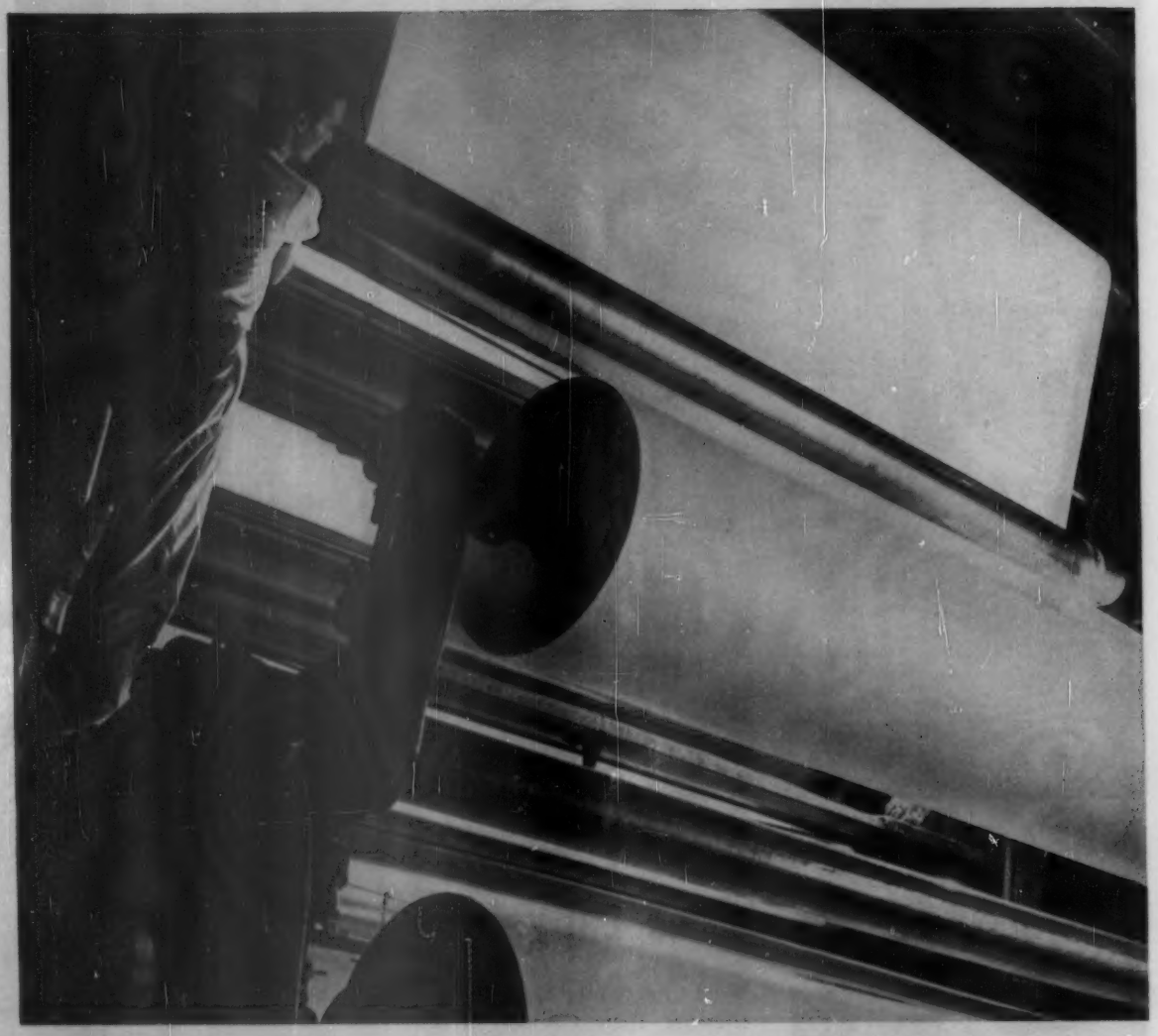
Rider roll pressure, for example, is variable over a wide range and can be closely controlled to suit varying kinds of paper. This is especially important at the start of the wind—before the roll picks up weight of its own.

On high speed Langston Winders using V-belt drive, controllable overspeeds of rear drum and rider roll keep sheet constantly taut as it is wound. Tension can be further controlled within close limits by one of a variety of different braking systems on the unwind stand.

Other advantages of Langston Slitters & Winders include the clean-cutting, shear-cut slitters, strong sturdy bedplate and sideframes, and hydraulic roll ejector and shaft loader available on most models. Sizes to 196 inches wide and speeds to meet your specifications. Write for full information. Samuel M. Langston Co., Camden 4, N.J.

SHEAR CUT CLEAN CUT

LANGSTON *Leadership by design*



"VIRGINIA" ZINC HYDRO

cuts groundwood bleaching costs 50%
increases brightness 12 points

That's the kind of brightening job "Virginia" can do on your groundwood pulp. That's the kind of savings which use of our reducing agent puts in your pocket.

Some mills have gained as much as 13 points, at one-third the cost of oxidizing bleaches. Saving: a cool $8 per ton. Bleaching with our zinc hydro can be done for as little as 60c per brightness-point per ton. And brightening is *permanent*—there is no reversion of color.

Low-cost "Virginia" Zinc Hydro is non-corrosive, stable in storage, easy to use in the plant. No expensive special equipment is needed. Many auxiliary chemicals are eliminated. "Virginia" Zinc Hydro works just as well in a small, non-integrated mill as it does in a large, continuous-production groundwood operation.

Call on us for proof of all this. The technical and practical knowhow of our experts is at your disposal. Write us today.

Industrial Department
VIRGINIA SMELTING COMPANY
Dept. 82, West Norfolk, Virginia

VIRGINIA Chemicals

Field Offices: NEW YORK • BOSTON • DETROIT
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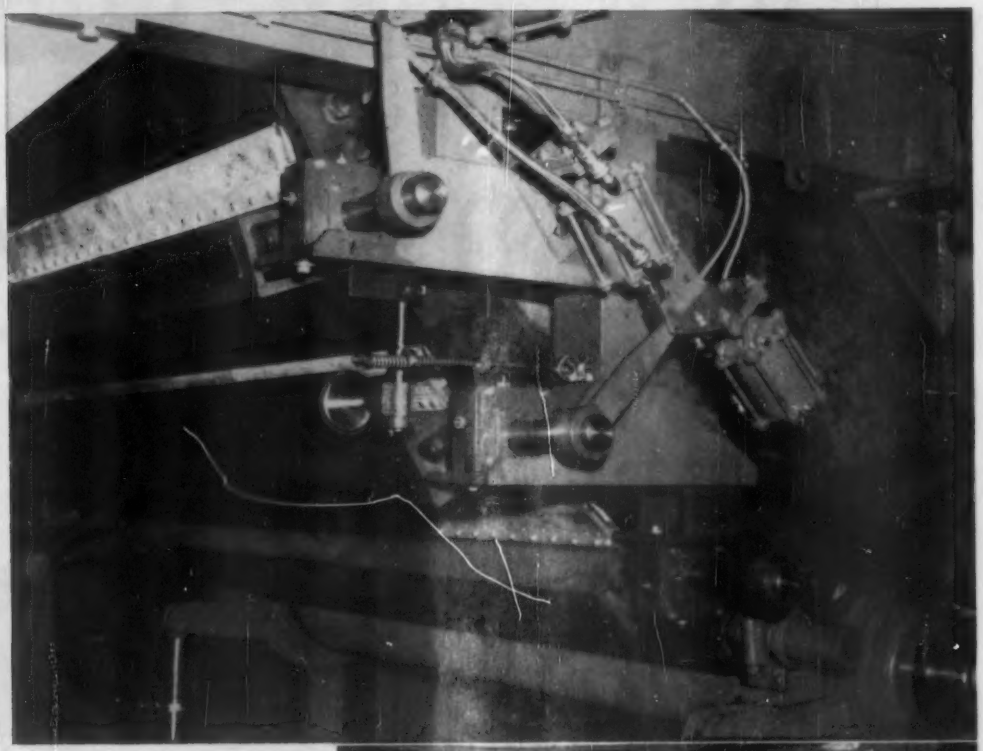
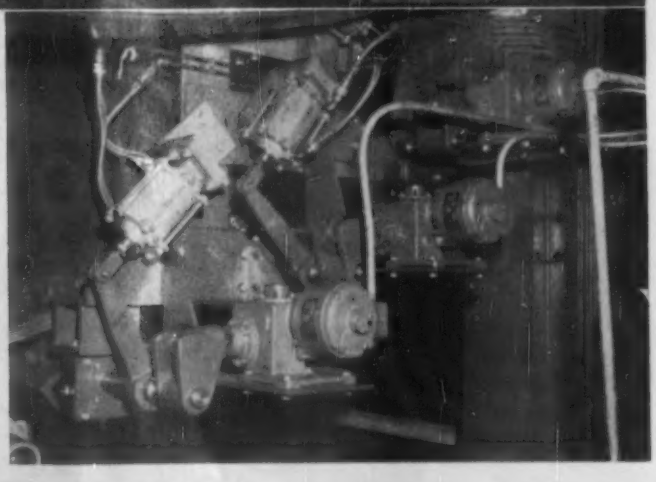
Available in Canada and many other countries

Another Lodding Creping Installation—



Tending Side ↑ Drive Side →

Photos by H. D. Wake, Jr.



LODDING—

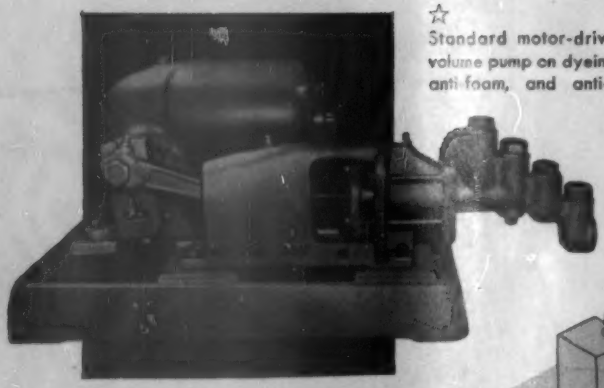
Doctor
Blade Holder
Precision-Built Blade

These mean the kind of doctoring you want, not only for creping but wherever a doctor is needed.

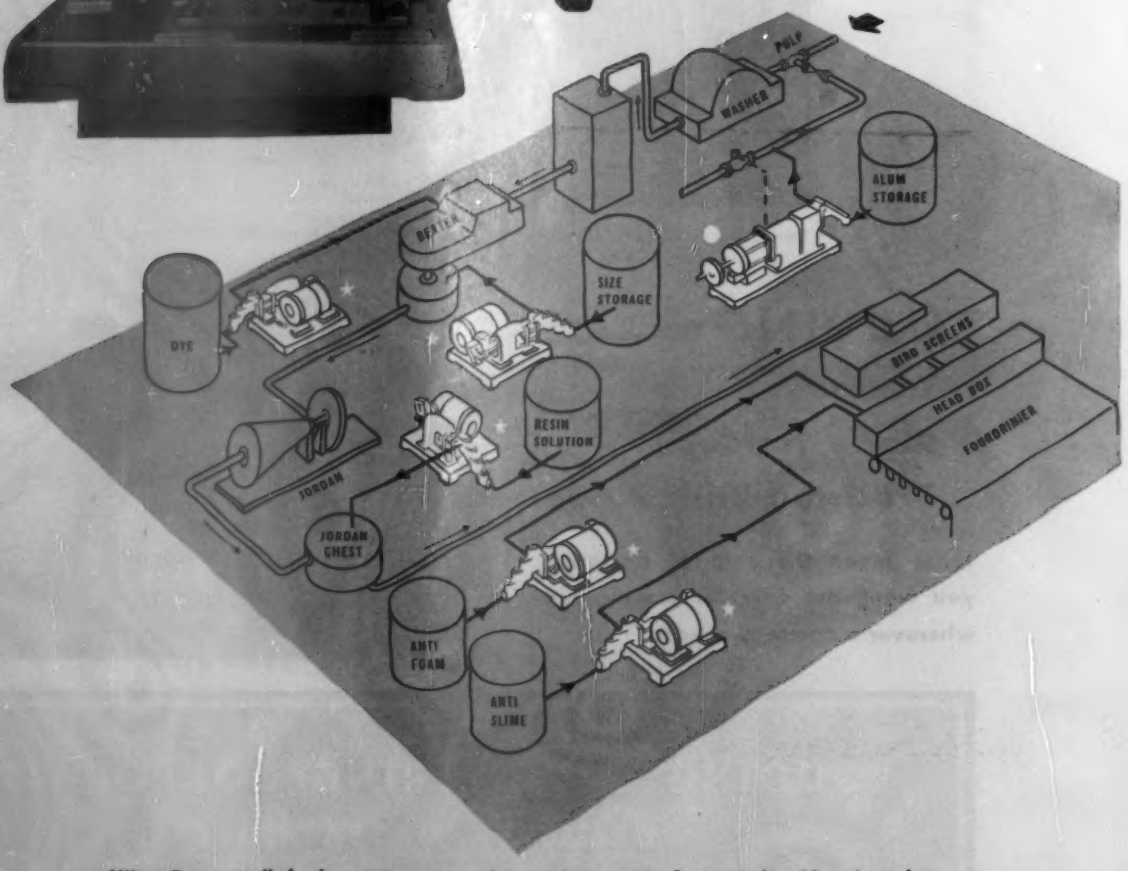
LODDING ENGINEERING CORPORATION
WORCESTER, MASSACHUSETTS
REPRESENTED BY
W. E. GREENE CORPORATION • WOOLWORTH BLDG., NEW YORK

new flow-control

improves paper-



☆ Standard motor-driven controlled volume pump on dyeing, sizing, resin, anti-foam, and anti-slime control.



Milton Roy *controlled volume pumps*—new solution to low-capacity flow control problems in stock preparation. Used to equal advantage in pulp bleaching, machine processes and water treating.

approach

making... lowers costs

Controlled volume pumps are flow control instruments

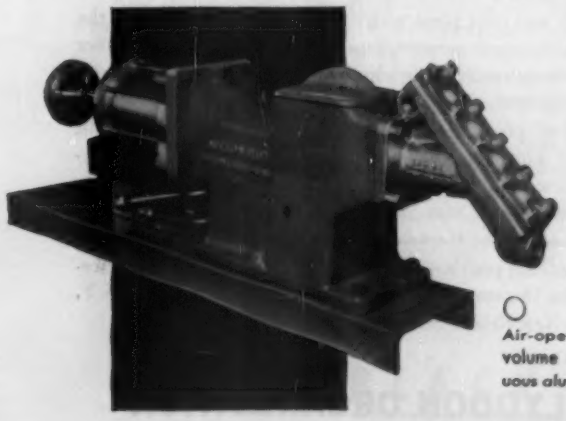
A NEW WAY of handling low-capacity flows more efficiently, more economically, is rapidly taking root throughout the paper industry. Wherever Milton Roy *controlled volume pumps* are metering papermakers' chemicals, mill operators report outstanding benefits—more precise control. No over- or under-treatment of stock. Less chemical consumption (no waste). Big equipment savings (expensive storage tanks eliminated). Improved product quality. Easier, *continuous* processing.

Reason: controlled volume pumps are actually flow control instruments . . . particularly valuable for low capacity flows. Reciprocating, positive displacement type pumps, they precisely meter reagents—any process additive—to an accuracy of within 1%. Exclusive Milton Roy ball-type *step-valve* design assures accuracy with clear liquids, viscous liquids and many slurries. Pumps are available in capacities up to 1350 gallons per hour . . . pressures up to 50,000 pounds per square inch . . . with manual or automatic speed and stroke adjustment.

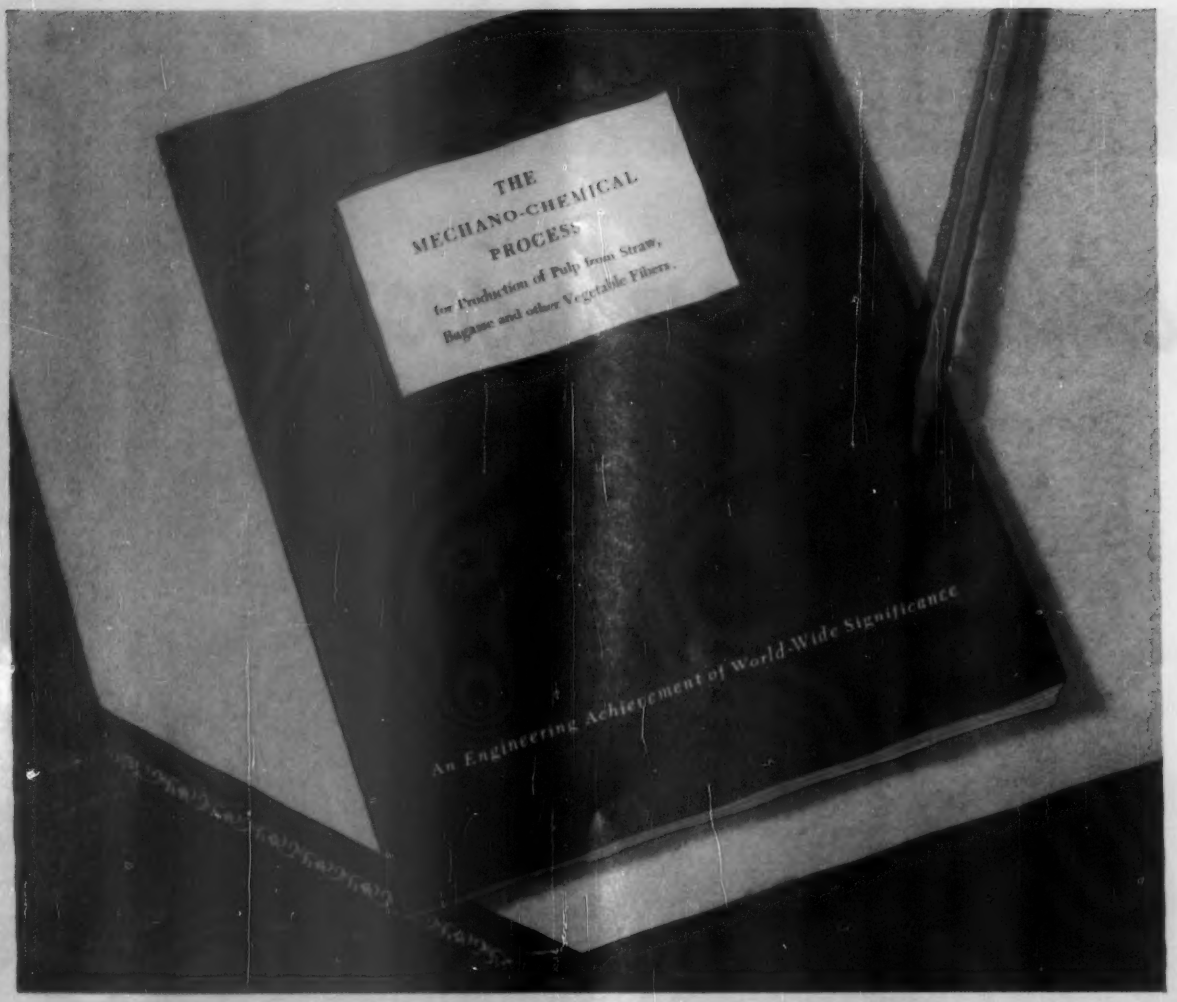
Note, left, the many points throughout the stock preparation process where controlled volume pumps are profitably applied. Where can they do a job for you? Milton Roy offers you long experience in handling low capacity flow control problems . . . in engineering complete chemical feed and automatic control systems. Write for technical information. Or, send your problem to Milton Roy Company, *Manufacturing Engineers*, 1300 East Mermaid Lane, Philadelphia 18, Pa.

Engineering representatives in the United States, Canada, Mexico, Europe, Asia, South America, and Africa.

milton Roy
CHEMICAL FEED SYSTEMS



Air-operated controlled volume pump on continuous alum dilution service.



This 28-page report *contains facts of immediate importance to every decision-making executive in the pulp and paper industry. Send for it today.*

With installations of the Mechano-Chemical Process for the production of pulp from straw, bagasse and vegetable fibres totaling millions of dollars now going forward in leading mills in 7 countries—the detailed facts in this brochure become of special importance to pulp and paper executives concerned with current major developments.

Among the subjects covered in this report of the work of Dr. Lathrop and Dr. Aronovsky, developers of the process, are the history of the process, a technical description *with a group of 3 simplified flow charts, the world-wide* market picture, the patent situation, the facts behind the *move of the U. S. Department of Agriculture in undertak*ing the experimental work to finalize a practical, economic, commercial method. This report reviews the findings of research and pilot plant with details of the higher yields, the lower chemical consumption, lower overall costs, smaller space requirements, the elimination of high pressures and temperatures, the machinery that accounts for increased speed of production resulting in a pulp for papers with higher bursting and tensile strength, greater folding endurance.

This brochure also contains samples of 7 different papers produced by the Mechano-Chemical Process.

To obtain your copy—write to the Parsons & Whittemore-*Lyddon Organization, 250 Park Avenue, New York 17, N. Y.* or 35 New Bridge Street, London EC4, England.

THE PARSONS & WHITTEMORE / LYDDON ORGANIZATION

World Leaders in the Development of Pulp Mills for the Use of Bagasse, Straw or Other Vegetable Fibres

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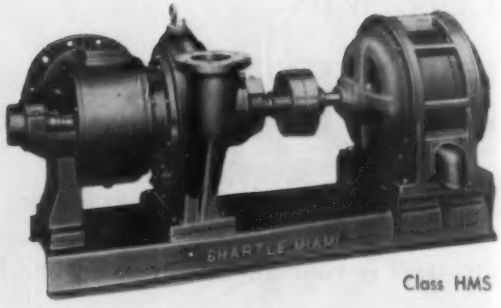
New York 17, N. Y.

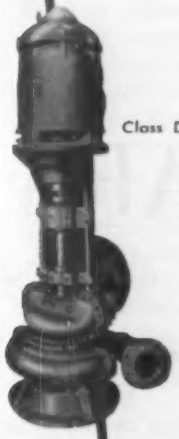
35 New Bridge Street
London EC4, England

THE LINE OF PUMPS THAT EXPERIENCE BUILT

Class HMSS



Class HMS



Class DVS

Class A

Shartle-Miami pumps reflect in their design a third of a century of study of paper stock pumping problems and every installation receives very special consideration.

The star of the line is the Shartle-Miami Class HMSS. Diagonally and fully split casing enabling the mill mechanics to lift out all operating elements without disturbing the piping connections. Will handle densities up to 10% with ease.

Also shown is the Class HMS—for locations where the inlet has to swing to some position to accommodate the piping.

Still another high-density design is the Class DVS, a vertical pump that also features a split casing. This particular pump is for installation in cramped quarters and in basements subject to flooding.

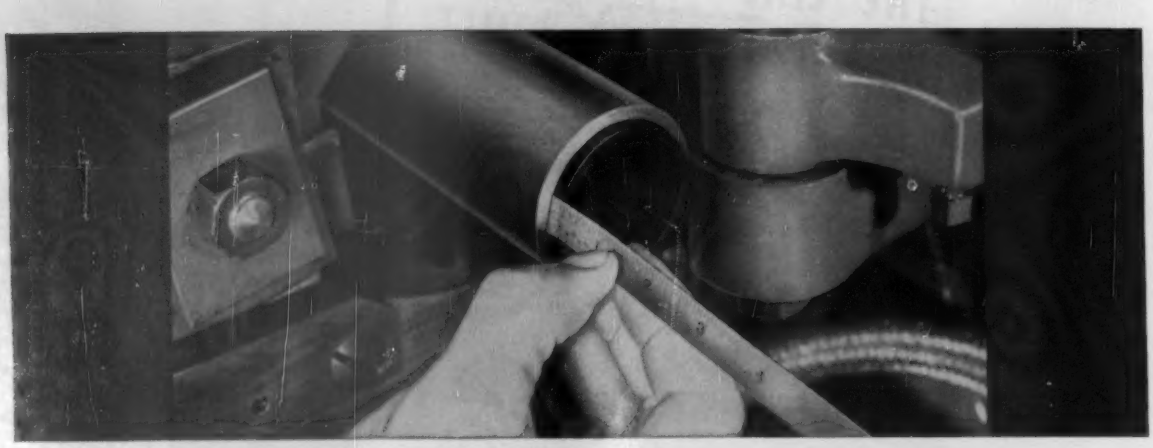
The ideal pump for handling water, white water or thin stock is the Class A—also furnished in a vertical design—the Class AV.

These and many other Shartle-Miami pumps in full range of capacities.

BLACK-CLAWSON

SHARTLE BROS. MACHINE DIVISION • MIDDLETOWN, OHIO

DOW



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CUTS CORROSION COSTS

Corrosion resistant Saran Pipe swaged into steel is your answer to downtime losses.

Saran lined pipe, fittings and valves are built to convey acids, alkalies and other corrosive liquids at low over-all costs. The durable inner lining eliminates shutdowns due to corrosion and forms snug, tight-fitting joints that prevent leakage.

Saran lined pipes, fittings, and valves are easily and inexpensively installed. They are cut and threaded in the field with any standard pipe fitter's tools. Because of saran lined pipe's rigidity, even long spans require a minimum of support.

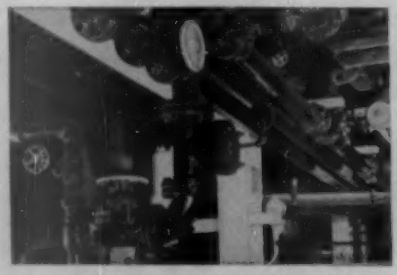
If your operation requires the conveying of corrosive liquids, and if downtime losses are troubling you, investigate saran lined pipe, fittings, and valves today. For further information, contact the Saran Lined Pipe Company, 2415 Burdette Avenue, Ferndale 20, Mich. Dept. 526 E

RELATED SARAN PRODUCTS—Saran rubber tank lining • Saran rubber molding stock • Saran tubing and fittings • Saran pipe and fittings.

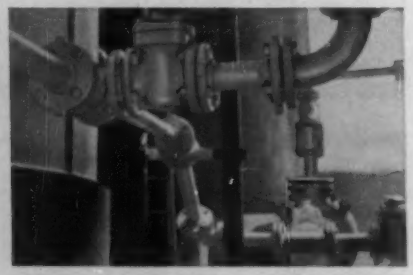
SOME OF THE MANY INSTALLATIONS USING

SARAN LINED

STEEL PIPE



A large chemical company uses this installation to convey demineralized water. It has a perfect record of keeping the water free of contamination for five years!

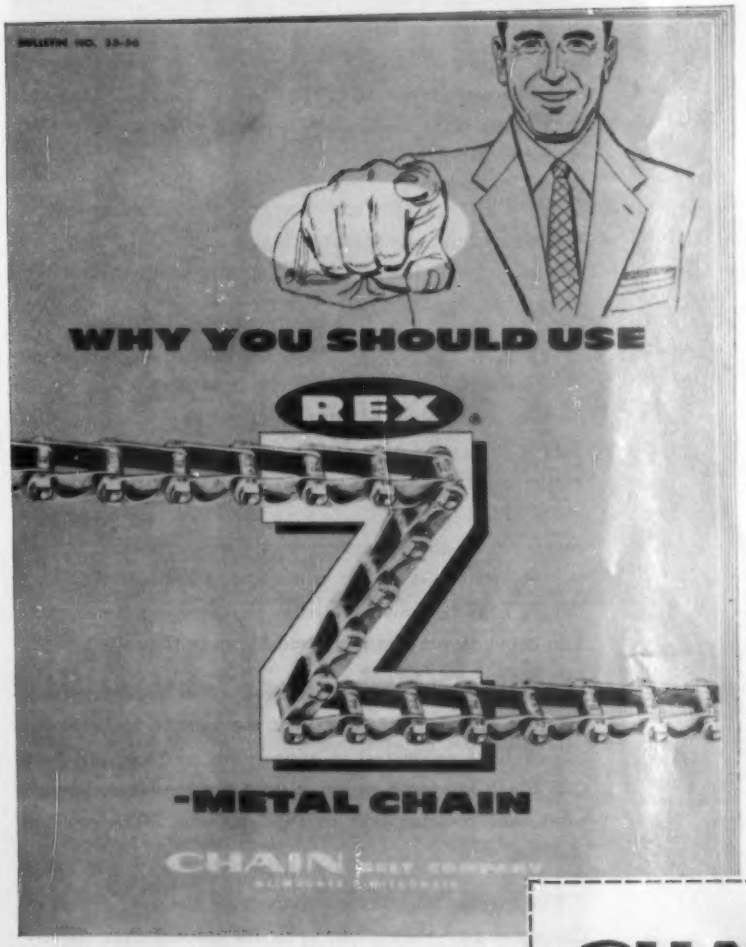


Saran lined pipe used for conveying hydrochloric acid at temperatures from 20° to 90°C., has had no unscheduled interruptions due to corrosion for over two years!

you can depend on DOW PLASTICS DOW

HERE'S PROOF

You'll get Better Service ...Longer Life with Rex Z-Metal Drive and Conveyor Chains



What's your problem... corrosion, abrasion, heavy pounding? What's causing your chain drives and conveyors to fail prematurely? This informative booklet has your answer...shows you how you can solve those problems with Rex® Z-Metal Chains. It proves why Z-Metal resists abrasion...corrosion ...takes heavy pounding... with plenty of actual case histories to back up our story.

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54-115

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Please send my copy of Bulletin No. 53-56 containing the facts on the superiority of Rex Z-Metal Chains for my service.

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Company.....

Address.....

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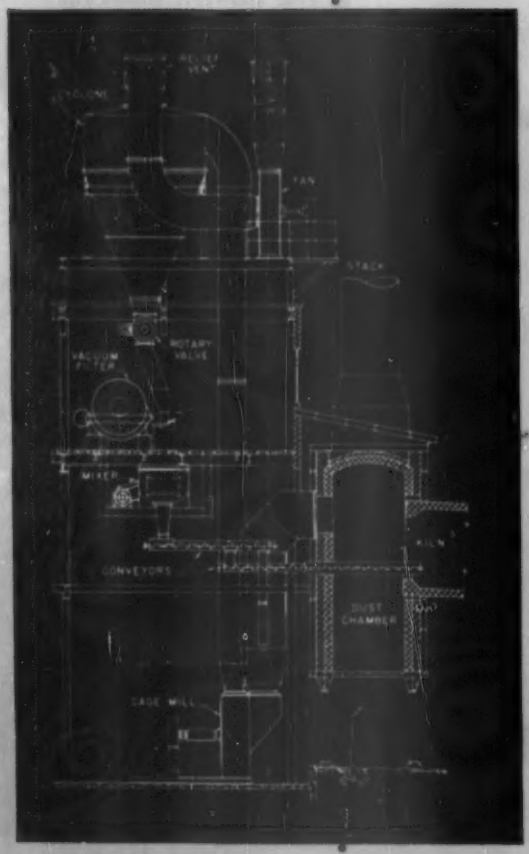
District Sales Offices and Distributors in all principal cities.

EVER SEE A KILN STRETCHER

?



• If, as in many mills, your pulp production has increased while your lime kiln capacity has not kept pace, you are probably making large-scale purchases of lime or you are overworking existing kilns to the extent that their efficiencies are too low and their fuel cost too high. There are a number of mills that are required to resort to both of these costly practices.

Well aware of the seriousness of such a situation, C-E engineers have adapted the long established Flash Drying principle to this common pulp mill problem. In effect, they have created a "kiln stretcher."

The C-E Flash Drying System when used in conjunction with a lime kiln utilizes the heat in the waste gases from the kiln to pre-dry the calcium carbonate mud before it enters the kiln. Using such a system the moisture content of the lime sludge can be controlled and can be reduced to less than 10%. Thus the Flash Dryer removes about 85% of the drying load from the kiln. Consequently that part of the kiln which had been used as a drying zone becomes available for calcining. As a result kiln capacity may be increased by more than 40%.

Since the C-E Flash Drying System uses heat that would ordinarily go to the stack, the over-all fuel cost per ton of lime recovered is appreciably reduced. In fact, C-E Flash Drying Systems now in service have reduced total fuel consumption to 9-10 million BTU per ton of lime.

For specific information concerning the application of this system to your plant — or for information on any C-E equipment — you are invited to consult with our representatives in your area — or, if you prefer, directly with our Paper Mill Division in New York. B-736

C-E

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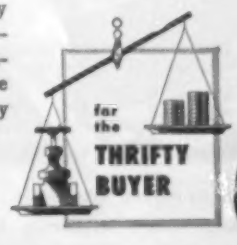
What you see here is routine procedure on raw materials coming to Crane. There's no unloading of the more than 3,000 incoming carloads per year until the Crane Quality Control Lab gives an unqualified O.K.

The extra care that Crane gives to raw materials, and similarly to every step in manufacturing, pays off in better valves for you. You can be sure that Crane stands for quality that results in lower cost in the long run.

That's another reason why thrifty buyers prefer Crane valves. They know they're investing in better piping performance as well as protecting against untimely and excessive maintenance. A mighty important consideration in these days of high costs. And, surely, the main reason why industry keeps using more Crane valves than any other make.

Better Quality
Bigger Selection
in Valves
for Every Need



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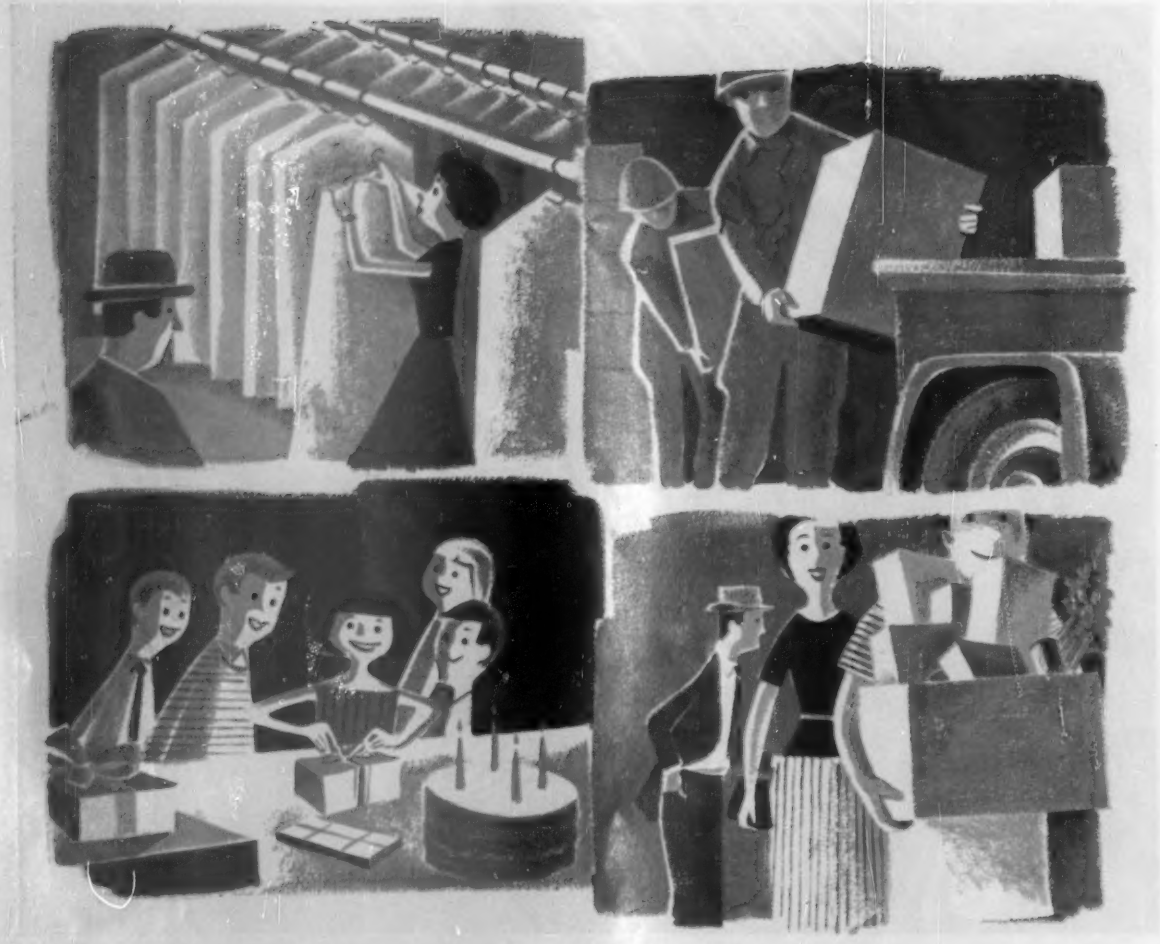
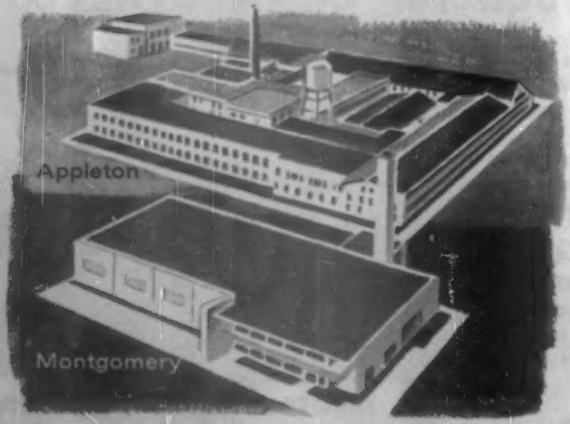
CRANE'S FIRST CENTURY . . . 1855-1955



How paper helps market the wares of the world



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From producer to consumer, paper for packaging is a vital and rewarding link . . . ambassador of good will and good deeds . . . preventing costly spoilage or damage to everything from foods to machinery, clothing to crockery . . . upgrading quality and appeal . . . building sales of goods and services everywhere.

And in at the very start of packaging paper—in every field where paper goes to work . . . Fourdrinier wires. Appleton Wires. Good wires—by a 59-year test of industry-wide acceptance and use.

Appleton Wire Works, Inc.

Appleton, Wisconsin

PULP & PAPER

What's Going On in the Market Pulp World

East Texas Mill Startup Brings in Quality Pulp

● Big event in world of woodpulp this past month was putting the first pulp over the machine at the brand new $25,000,000 East Texas Pulp & Paper Co., Evadale, Tex. Despite a costly 6-weeks delay due to a construction strike, first pulp was made at 12:03 p.m. on Dec. 6. Board has also been made.

"Estex" is trade name of the new chlorine dioxide bleached kraft market pulp which will be a major product of this 300-ton mill jointly owned by Houston Oil Co. and Time, Inc., backed by 650,000 acres of their timber. Its versatile 216 in. (196 in. trim) Beloit Fourdrinier with full differential drive and General Electric turbogear also makes foodboard and other board. Solvay chlorine dioxide process is a feature, with Impco equipment.

PULP & PAPER magazine broke first news of this significant mill plan over two years ago, and was the only magazine covering a Vancouver, B. C., board of directors meeting, with the result that a full list of major equipment was exclusively published in the Sept. 1953 issue of P & P, page 49 and 50.

Charles L. Stillman of Time Inc. is East Texas president; Richard A. McDonald, former Crown Z executive v.p., is executive committee chairman. R. M. (Mike) Buckley is exec. v.p. and gen. mgr., and A. G. (Buff) Natwick is mill mgr., John Hartman, plant engineer, Joe Dunn, paper mill supt., and Ray Brown, pulp supt. All were from Pacific Coast mills, except Mr. Hartman, from KVP.

RAYONIER'S NEW PRODUCT—Rayonier, Inc., has announced a new chemical product, "Rayflo," derived from hemlock bark for use as a thickening agent in drilling fluids or "muds." The product, now in commercial production at Rayonier's Hoquiam, Wash. plant, is the organization's first bid for oil industry customers.

GOOD NEWS FOR FINLAND—An evaluation of Finland's forest potential reveals enough forests for an additional production of 1,000,000 tons of pulp or paper. Spurred by this survey, the Finnish pulp and paper industry has formulated a five-year plant to boost production of pulp and paper by 100,000 metric tons each year, depending on the market.

A Finnish industry spokesman, interviewed by PULP & PAPER, points out that Finland is rich in forests but poor in money.

YUGOSLAVIA OUT OF PULP SALES—Yugoslavia's own market chemical pulp mill, the Priyedor sulfite mill in Bosnia, which has exported about 10,000 tons a year, will now have most of its production diverted to a new adjoining 22,000 tons a year paper mill. This will open up new markets to North American or Scandinavian pulps, formerly supplied by Priyedor.

KITIMAT GETS GREEN LIGHT—Kitimat Pulp & Paper project has the green light on development, having been given approval by the British Columbia government in its application for a forest management license. If the working plans are acceptable, the company proposes to go ahead with a newsprint-market pulp development costing around $65 million, at Kitimat, using power from the big hydro setup created by Aluminum Co. of Canada. Powell River is a partner in Kitimat.

Dick Sandwell's firm has carried out preliminary engineering. Coverdale & Colpitts of New York made a survey for Harold Foley, president of Powell River, and reported that it would be economically feasible.

With Elk Falls going ahead with its kraft mill and B.C. Forest Products moving along with its $30 million mill, it looks as though B.C. is all set for another important expansion period.

RAW LINTERS PULP PRICES—The erratic price pattern usually associated with raw cotton linters continued in the 1953-1954 season, although the amplitude of the fluctuations was not quite as great as it has been at some times in the past says the organization. Thus the average monthly price of grade 6 cotton linters, a type used in the manufacture of linters pulp, was 3.22¢ a pound during the season ended last July 31, the actual quotations ranged from a low of 2.95¢ to a peak of 3.85¢. The 1952 season average price was 4.33¢ a pound, while for the 1950 and 1951 seasons the averages were 14.19¢ and 7.41¢ a pound respectively. The latest available quotation for this grade of linters, covering Aug. 1954, was 3.00¢ per pound.

PLAN NEW B.C. PULP MILL

Top figures in Kitimat Pulp & Paper Co., which now has government-approved forest license clearing way for newsprint and kraft pulp mill at Minette, 5 mi. from Kitimat, B.C. (l to r): FRANK H. BROWN, President, and HAROLD S. FOLEY, President of Powell River Co., partner of Aluminum Co. of Canada in the venture.

CANADIAN EXPORTS—Canadian pulp exports continue at a high level, more than 200,500 tons being shipped during October to bring the 1954 total to over 1,800,000 tons, compared with 1,500,000 tons for the corresponding period in 1953. Production in October was 836,603 tons, bringing the ten months' figure to 7,890,415 tons. Output of mechanical pulp at the end of October was 163,078 tons greater than in 1953, while chemical pulp output increased by 319,051 tons.

JAPAN SUFFERS LETDOWN—Japan's pulp and paper industry is suffering from an economic letdown due to collapse of the "Korean boom," according to Ryosako Takata, of Tokyo, head of Tohoku Pulp Co. and president of the Japanese Pulp Industry Association.

On his way back to Japan after attending a world conference on utilization of fiber, Mr. Takata passed through Vancouver, B.C., where he was joined by C. T. Takahashi, Seattle, and other coast Japanese leaders.

"In the pulp and paper industry we are running short of raw materials," he continued. "We have been exploring the possibility of establishing mills in Alaska. We have a long way to go before we can compete in size with the mills in this country. Our company with two mills is the largest in Japan, but we produce only about half the output of one of the average Canadian mills."

Looking Ahead—1955—Next Decade

Packaging grades will recover and U.S. mills will want more pulp. But what are facts about Europe?

By L. K. LARSON

Keve Larson—"For their own sake, European consumers better be sure about the OEEC forecast."

• In a report to the Book, Writing and Goundwood Associations over a year ago, I suggested that, because the paper and paperboard industry had become more diversified and most major end-products were now basically utilitarian, this industry, in the next downward swing of the economic cycle, should fare relatively better than most American industries.

During the past 13 months, this industry has in fact fared much better than industry generally. As compared with an average 8% decline in overall industrial production in 1954, total paper and paperboard production has declined by only 1%.

In printing papers, building papers and board and sanitary paper products we have produced larger tonnages this year than last. Only in packaging grades, related more closely to overall trends, is the decline significant. Experts now predict we shall soon see a gradual upward movement in overall production. As we do, improvements should occur in demand for paper and board for packaging.

In my report a year ago, I suggested that, with Old World recovery, Old World markets might likewise begin to diversify their paper and board production, and thereby increase their fiber requirements.

While demand for market chemical pulp in the U.S. during 1954 was slightly below 1953's level, purchasers abroad, where more than half of the world's market pulp supply is consumed, have been buying one-third more chemical pulp than they did in the same period of 1953.

My report pointed out further that foreign consumers, as their pulp requirement increased, would have to look more and more to North American producers. They have been doing just that. U.S. exports to overseas markets, to date, have been 281% greater than last year, Canada's overseas 60% greater. North America, in the first 9 months of 1954, shipped overseas 335,000 tons more pulp than she did in the 1953 corresponding period.

U.S. dependence upon overseas supply has been declining as predicted. In the first 9 months of last year, Europe supplied 15.5% of our market chemical pulp; in the corresponding period this year, only 11.2%.

Expectation that the Old World would solve its economic problems, improve its productivity and enjoy a steady improvement in its basic standard of living has also been borne out. While U.S. overall, industrial production has been down about 8%, in 1954, Europe's has been up 8%.

FORECAST FOR 1955—I look for continued strength in the overseas markets for woodpulp during 1955, for recovery abroad seems this time to have been soundly based. There has been no evidence of inventory accumulations by producers or consumers of woodpulp, either here or abroad. On a world basis, the pulp tonnages that are being produced are being sold, and the tonnages purchased are being consumed.

I also look for improved strength in domestic markets. Weak spots as far as pulp demand is concerned, have been unbleached grades used in packaging markets and dissolving pulps consumed in manufacture of rayon, cellophane, etc. The domestic rayon industry is showing signs of recovery; packaging demand should improve.

Increases in domestic fiber requirements, with a sustained overseas demand, should provide a satisfactory average operating rate next year for the world's market pulp suppliers, justifying recent expansion of facilities for the production of market pulp.

WORLD LONG-RANGE VIEW IS DIM—Long-range, we must learn a lot more about what world fiber requirements are likely to be before we can determine intelligently how they can best be met.

Two reports issued do a little initial spade work. One by the Stanford Research Institute is entitled "America's Demand for Wook—1929-1975." The other, by the Organization for European Economic Co-operation, is entitled "The Pulp and Paper Industry in Europe—Developments and Prospects."

There appears complete unanimity of opinion on one point—namely, that world fiber requirements will mount significantly in the next decade or two. The Stanford report foresees a doubling of U.S. woodpulp requirements between 1952 and 1975. The OEEC report predicts that, between 1950 and 1960, Europe's requirements of woodpulp for papermaking will increase 30%% and its dissolving pulp requirement, 39%.

A year ago, I suggested North American market pulp capacity had been expanded, in part at least, in anticipation of long-range increases in demand from Europe. Recent trends appear to support this theory that world dependence upon North American sources will increase. The OEEC seems to dispute this theory, however, and suggests that cellulose fiber production in Europe will be adequate to take care of Europe's requirements in the next decade. If this is the case, and I seriously doubt it, North American producers may want to take another very careful look at their plans for expansion in the next decade.

The assertion by duly authorized representatives of the pulp and paper industry of Europe that they will not require additional North American fiber may well serve as an effective deterrent to the further expansion of market pulp facilities on this continent. For their own sake, I suggest that consumers in Europe better be certain that this vital conclusion is soundly based.

Mr. Larson, Sales Manager of Pulp Division, Weyerhaeuser Timber Co., made these comments in an address to National Paperboard Assn., New York City, Nov. 9.

"Know-Why" Must Go With "Know-How"

Paperboard production is forecast. Also capacities for years ahead. NPA will cooperate with APPA.

• Employes can do their jobs better if they have the "know-why" to go with the "know-how."

This was a salient point made by Marvin W. Swaim, in his "swan-song" before the National Paperboard Association after three years as president.

Mr. Swaim, first vice president and general manager, Alton Box Board Co., Alton, Ill., was succeeded as NPA chief by T. Noel Bland, president of Fibreboard Products Inc., San Francisco. Elected new vice presidents of NPA at the fall meeting in New York Nov. 9 were F. Henry Savage, vice president of International Paper Co., New York, and Paul A. Schilling, president of Waldorf Paper Products Co., St. Paul, Minn.

Total U.S. paperboard production of 12,150,000 tons for 1954, about 3% behind the record in 1953, was forecast by Alvin A. Newburg, NPA statistician. One of the few items in paper or paperboard showing an increase for 1954, he said, is semi-chemical corrugating medium. From 4,700 tons average weekly production in 1941-5, it has jumped to a 21,000 tons average week.

He estimated U.S. paperboard annual capacity (6-day basis) at 14,343,000 tons at the end of 1954, and predicted it would climb to 14,693,500 by the end of 1954, then to 15,013,500 at the end of 1955. The end of 1955 capacity, however, would be 17,515,500 tons on a 7-day work week basis.

In 1957-8, new machines and improvements now planned will add 156,000 tons capacity (6-day basis). New machines in 1955 will add 165,000 tons; in 1956, 151,000. New improvements will add 185,500 tons in 1955, and 169,000 in 1956. Most new machines and improvements will be for Fourdrinier kraft liner and semi-chemical corrugating.

An important NPA decision was to schedule meetings from time to time in the Southeast and on the West Coast, for members who cannot attend the regular New York and Chicago divisional meetings. Al Luhrs, executive manager, pointed out eight member companies on the West Coast now operate 16 mills.

NPA-APPA COOPERATION—An NPA committee will be named to meet with an American Paper & Pulp Association committee to consider subjects of mutual interest, such as contacts with government. The NPA committee will consist of members whose companies make only paperboard; the APPA group of members whose companies make only paper. Messrs. Bland, Swaim and George E. Dyke, of Robt. Gair Inc., who chairmanned a committee studying the proposal for cooperation, will select the committee that will represent NPA.

NEW V.P.'s OF NPA

New Vice Presidents of the National Paperboard Association for 1955: F. HENRY SAVAGE (left), Vice Pres. of International Paper Co., and PAUL A. SCHILLING (right) Pres. of Waldorf Paper Products Co. Mr. Savage is a veteran of more than 30 years with IP, for many years sales manager of their book and bond div., directing sale of printing and converting papers and also production of bleached board. Mr. Schilling, a native of St. Paul and grad of U. of Minnesota bus. ext. school, joined Waldorf in 1913 as an office boy, became a director in 1928, gen. mgr. in 1929, and president in 1933.

WHAT SWAIM SAID—Mr. Swaim touched on many subjects in his "swan song." But most interesting were his remarks on management-labor interdependence:

"The employe can't have steady work, good wages and pleasant working conditions for very long unless the company for which he works makes a profit. The employer can't sell his products at a fair price to make a fair profit unless his employes are productive. This, then, is the goal toward which both must direct their efforts.

"This entails a change of attitude on the part of many members of both groups. The employe must wake up to the fact that he cannot benefit indefinitely at the expense of his employer. He must give fair value—an hour's work for an hour's pay.

NPA PRESIDENCY SHIFTS

NOEL BLAND (left), Fibreboard Products President, takes over reins as new NPA leader. MARVIN SWAIM (right), Alton Box Board First V.P. and Mgr., who passed them on, after three years in driver's seat.

"The employer, for his part, must consider his labor force as partners, not merely as necessary adjuncts to operating a business. This doesn't mean that he should surrender any management prerogatives. It does mean that the employe can do his job better if he, like management, has the know-why to go with his know-how."

W. H. Beckwith, president of Morris Paper Mills, and J. S. Miller, president of New Haven Board and Carton, reported on behalf of waste paper consumers. Mr. Beckwith said the tide has turned—the falling trend in percentage of waste paper used in the industry has halted. For two years, it has been 35% of paperboard produced. Now total consumption will turn upward, he forecast.

Keve Larson, Weyerhaeuser Timber Co., predicted continued strength in overseas demand for woodpulp and increased demand in the United States. He forecast an increase in demand for packaging paper grades.

Data on Buckeye's Boiler

The recovery boiler at the new Buckeye mill in Foley, Fla., was built by Babcock & Wilcox Co. and at the time of its installation was the largest recovery boiler anywhere in the world in this industry. Its capacity is 413 tons per day and it is a 170,000,000 lbs./hr. unit, standing 146 ft. high.

The article in our December issue made erroneous credit of the design and manufacture of this boiler.

Facts on U.S. Aid to Mills Abroad

Specially prepared report on FOA activities includes official figures for past fiscal year

● Especially prepared for the readers of PULP & PAPER, a revealing report on Foreign Office Administration overseas activities shows first details to be published on the past fiscal year's record for aid given to building overseas pulp and paper mills and for purchase of pulp and paper in world markets.

During the past year, and since the Eisenhower administration came into being, several leaders of this industry have told PULP & PAPER they were having difficulty getting information on FOA activities. This magazine also encountered similar difficulty at first.

But this report was obtained finally through the cooperation of U. S. Senator Mike Mansfield of Montana, member of the Senate committee on foreign relations.

These figures are for the past fiscal year only. Some American industry leaders, who expressed disappointment in trying to get information from Harold Stassen and his staff, have made a guess that $20,000,000 has gone into Austria alone for pulp and paper mills since the war.

WHAT AUSTRIA AND TAIWAN GOT—Aid for new pulp and paper mills in Austria and Taiwan (Formosa) were specifically mentioned in an explanatory letter accompanying the report prepared for PULP & PAPER. It was signed by William F. Russell, FOA deputy director for technical services.

"The effect of FOA operations in the pulp and paper plant development field has been to make capital available to entrepreneurs at interest rates approaching U. S. levels," said Mr. Russell. "Thus, it can be seen that these developments in Austria and Formosa have resulted from actions by individuals or companies willing to risk capital in these developments."

Austria, as revealed in PULP & PAPER'S 1954 WORLD REVIEW NUMBER, ranks now directly behind U.S.A., and of course, behind Sweden, Canada, Finland and Norway, as a woodpulp exporter, thanks largely to U.S. aid. Austria exported 132,000 tons last year to rank 6th. U.S. market pulp companies are actively seeking foreign markets and their exports now run about 30% ahead of last year's record of 162,000 tons.

TABLE I

FOA FINANCED PULP AND PAPER PRODUCTS
Fiscal Year 1954

July 1, 1953 to June 30, 1954

Country of Destination	*Obligations*	*Expenditures*
Europe	$470,000	$11,244,000
Austria	—	—
Belgium-Luxembourg	—	—
France	—491,000	3,951,000
Germany (Fed. Rep.)	—473,000	595,000
Iceland	45,000	—
Ireland	—	—
Italy	—	—
Netherlands	—	—
Spain	6,000	—
Trieste	—	—
United Kingdom	1,039,000	6,236,000
Yugoslavia	344,000	461,000
Far East	$2,999,000	$1,056,000
Burma	—	—
China (Formosa)	1,778,000	901,000
Indochina, Associated States	21,000	10,000
Indonesian Republic	—	—
Korean Relief and Rehabilitation	1,189,000	82,000
Philippines	—1,000	50,000
Thailand	12,000	13,000
Greece	$1,787,000	$76,000
Turkey	19,000	3,000

NOTE: Minus signs denote reductions in obligations.

TABLE II

PULP AND PAPER—INDUSTRIAL PROJECTS FINANCED IN PART BY FOA
Fiscal Year 1954

July 1, 1953 to June 30, 1954

European Program	*Procurement Authorized*	*Paid Shipments*
Austria	—$30,000	—
Italy	—69,000	—
Portugal	—5,000	18,000
TOTAL	—$104,000	$18,000
Far East Program		
Formosa	2,238,000	298,000
TOTAL	$2,238,000	$298,000

NOTE: Minus signs denote reductions in authorizations.

While this had no bearing on FOA activities, leaders in this industry in the past year protested an Export-Import Bank $16,000,000 loan setting up what they contended could be a competitive industry in New Zealand. This also was one reason for a formal industry protest against any government aid to a Japanese industry in Alaska.

In his letter to Sen. Mansfield, Mr. Russell made reference to the inquiry by this magazine, and wrote:

"In the first place and most important there have been no gifts to individuals or companies for building mills or purchasing pulp and paper. There have been procurement authorizations which make available foreign exchange to cooperating countries for the purchase of commodities and equipment. To obtain this foreign exchange, individuals and companies in the cooperating countries must pay the equivalent in their local currency.

"Table I attached shows FOA financed pulp and paper products, obligations and expenditures by country of destination for FY '54. Table II shows the statistics on pulp and paper industrial projects financed in part by FOA giving procurement authorized and paid shipments by country for FY '54.

"The local currencies put up by the recipients of the above commodities and machinery imported under FOA programs goes into the so-called counterpart funds in each country. 10% of these funds accrue to the account of the U. S. The balance, or 90%, belongs to the government of the cooperating country and is kept in a separate fund jointly administered by the cooperating country and FOA. These funds are used to finance military programs, public works, etc., and, on a loan basis, industrial development. Interest bearing counterpart loans approved for withdrawal for promoting the production of pulp and paper are indicated in Table III."

TABLE III

COUNTERPART FUNDS APPROVED FOR WITHDRAWAL FOR PROMOTING PRODUCTION OF PULP AND PAPER

(Dollar equivalents of local currency)

Country	*Fiscal Year 1954 as of June 30, 1954*
TOTAL	$4,700,000
Austria	3,500,000
Denmark	—
France	—
Germany (Fed. Rep.)	600,000
China (Formosa)	600,000

Fancy New Words for Old Practices?

One small, vocal segment of business thought contends that the growing interest in executive development is basically the application of a lot of fancy words to what good management has always practiced. Whether or not you agree with that debatable point of view, you will be hearing a lot of these words and phrases, predicts Mr. McSweeney:

Analysis of job performance
Aptitudes-attitudes
Home-grown executives
Job definition
Job rotating
Managerial appraisals
Managerial incentives
Managerial inventory
Managerial leadership
Middle-management
Motivation
Operational management
Organizational planning
Recruitment program
Successor-management
Three-position plan of promotion

Good Executives for Family Firms

Ed McSweeney says in many ways this is most difficult management problem to solve. This industry lags behind.

● "As we face the increasing complexities of the pulp and paper industry we need more highly trained specialists. We need them to run our complex machines, and to design new and better ones. We need them to help run our communities and organizations like the American Paper & Pulp Association, which are also becoming more complex. We need men and women who understand economics and who can explain it in terms the average man can understand. But we need more than that. We need men and women with high ethical standards, with a broad general background, who are mentally equipped to step out of their own particular field of specialization and assume the responsibilities of leadership, which can best be defined as the job of top management."

These comments by Edward McSweeney, vice president and treasurer of Perkins-Goodwin Co., introduced an interview with PULP & PAPER on management problems. Mr. McSweeney has been a recognized authority in management consulting since 1933, and is in frequent demand as a speaker and a writer on management subjects.

Question: In our last discussion (PULP & PAPER, page 86, Dec. 1953) we explored the need of the industry for taking more aggressive steps in developing and training men for top management. The purpose of this interview is to get down to a more specific plan of action. Let's say I am owner-president of a substantial family-type organization in the industry, and want to do something about this. Where do I start?

Mr. McSweeney: A sound management development program cannot be bought. Any good program in this type of company must take an informal and personal shape. Perhaps a good place to start is to attempt to induce your older men to take a fatherly interest in developing younger men. In this connection, one of the most important steps is to remove the tradition by which older men tend to regard younger men as competitors and convince the older men that one measure of any good executive is to pick and develop an assistant who is better qualified for the job than he is. This is a difficult step, but it must be the foundation of a sound program.

My observation has been that many programs have been strangled by their own weight. Most important single step is for top management to decide that they need a program. After that important decision, a management appraisal should be made, which could lead to attendance at meetings or seminars, professional society activities, special management schools, after-hours academic classwork, leadership of conferences. In brief, there are many facets to this problem, the solutions of which must stem from the realization that the problem exists.

The family-type of management is referred to as successor-management, and in many respects is the most difficult management problem to solve. That point can best be illustrated by the fact that a recently completed top-level survey showed that one out of 10,000 men is emotionally suited for top managerial leadership.

Question: This industry is moving toward more complete integration and better by-product utilization and merchandising. How do we find men or train the men we have to meet these problems and to make the most of these opportunities?

Mr. McSweeney: Not only is pulp and paper the fifth largest industry in our industrial life, but that over the past 25 years it has grown faster than any other major industry. *In that same time it has done less about executive development and training than any other major industry.*

The head of a family-owned business can find many well qualified men for operational positions such as production, financial and sales, but they don't know where to turn when they're looking for future top management. In my opinion, the basic reason for the present deficiency is the fact that top management men in the industry have not recognized the scope of the problem, which covers every aspect of economics, political life, technological advances, and, in most cases, an understanding of the newest developments in the fields of taxation and finance. A top assignment in a situation like that is a big order to thrust upon a man who has come up through forestry, mill production, or sales.

Now that many parts of the industry are rapidly overlapping the chemical field and the merchandising field, the problem of top management becomes that much more severe.

Question: It is our understanding that at least one of the major integrated companies in this field has an executive staff of 22 officers with an average age of 57 years, and that a program of executive training has been

Continued on page 100

HE WILL CO-CHAIRMAN MEETING IN VICTORIA, B.C.

MAX BAILEY (left), London-born Supt. of Westminster Paper Co., New Westminster, B.C., who began his career many years ago in that Canadian tissue mill, receives congratulations on being elected new Pacific Coast Chairman of Supts., from HARRY E. HADLEY, Middletown Mill Mgr. for Gardner Board & Carton Co., who is Supts. National President, and OLIN W. CALLIGHAN, Paper Industry Sales Mgr. of Minerals & Chemical Corp. of America, who is National Chairman of Affiliates. Mr. Bailey will Co-Chairman meeting in Victoria, B.C., next spring—a Tri-Way event with Coast Tappi and Canadian technical group.

A TRIO OF BUSY ONES AT THE SEATTLE MEETING

Left to right: DAVID W. HARRIS, Seattle Mgr. for C. C. Moore & Co., Engineers, representatives in Far West of Babcock & Wilcox, was convention's Chairman of Arrangements and did much to make the Seattle Coast meeting a success. MISS KAY A. FRALICH, Secretary to BURKE MORDEN, Morden Machines, Portland, Ore., who worked on this convention and also has the distinction of making a transcontinental trip last summer to the National Supts. in Montreal to assist there when her "boss" was Affiliates Chairman. GORDON B. ANDERSON, Vice Pres. of Puget Sound Metal Works, had tough assignment of "housing and registration."

Human Relations Theme Dominated

In talks by mill men on cost reduction and quality improvement at annual Fall Pacific Coasts Supts. Meeting

● The theme of human relations ran through many of the talks—though the subjects were how to reduce costs and raise quality—at the annual Fall Meeting of Pacific Coast Supts. in Seattle, Dec. 3 and 4. Nearly every speaker stressed the need for more effort in making workers feel part of the overall team.

The meeting was unusual as all papers were by key mill men including a Weyerhaeuser division manager, who stressed the human angle in cost matters, and a Crown Zellerbach resident manager, who cited a lead story in PULP & PAPER (Dec. issue) for those who wanted to know the future of this industry.

Officers said it was their biggest meeting—218 men and 90 women were registered. This was before the final banquet, dancing and floor show which brought in many others, including men from nearby mills. Actually there were 77 mill men and 141 other men registered.

London-born Max Bailey, supt., Westminster Paper Co., was elected new chairman. Ben Beck, supt., Oregon P & P, moved up to first vice chairman and John Victor, paper supt., St. Regis, Tacoma, to second vice. The new third vice chairman is Jack Savage, sulfite and bleaching supt., Crown Zellerbach Corp., Camas, Wash.

HADLEY SAYS STEEL MILLS COPIED PAPERMAKING – Harry Hadley, Supts. Assn. national president, and his wife made the trip from Middletown, O., where he is mill manager for Gardner, to give two addresses. One of the surprises of his talks, besides some good stories, was that steel mill rolling processes are copied from papermarking. A predecessor of his company was Titus-Gardner Paper Co. The Tituses pulled out and went into what is now Armco Co., former American Rolling Mills, in Middletown, O. Mr. Titus said if paper can be made continuously on rolls, so can steel. And he did just that.

QUALITY CONTROL—Frank Hamilton, asst. gen. supt., Everett Pulp & Paper Div. of Simpson Logging Co., moderated the quality technical session. His keynote: the two main problems of pulp and paper manufacture are *quality* and *costs;* the final result is a compromise between these two.

Peter M. Wilkie, asst. kraft mill supt., Crown Z, Camas, Wash., related his views of "Applied Quality Control," which, he said, has the twin goals of (1) uniform product and (2) increased quality of product. He said the first goal cannot be reached until the operator knows the specifications and variables, receives the proper instruction from his superior and makes study of test reports. Mr. Wilkie cautioned, however, against making operators' instructions too detailed.

He said, "At Camas, we have installed several instruments right in the operating departments so that workers could check on current results. These instruments were placed on the machines which required the most adjustment and attention."

Properly supervised operators, he stated, will learn to deviate from "standard procedure" and will put out a higher quality product.

Results of supervisor's program two years in the making were demonstrated by Pat Reiten, general safety supervisor for Simpson Logging. He cited "attitude" of the men in production as a cardinal factor in quality control.

Mr. Reiten emphasized, "Attitude is not a constant factor—it varies from

NEW IDEAS ON COSTS AND QUALITY—BUT HUMAN RELATIONS FIGURED IN ALL TALKS

The cost reduction panel (l to r): JOE JULSON, Mgr., Pulp Div., Weyerhaeuser, Springfield, Ore; JACK WEIBLEN, Finishing Room Supt., Columbia River Paper Mills; KEN CHAPMAN, Tour Foreman, Weyerhaeuser kraft pulp mill, Everett, and GERRY WILLINS, Supt. of Weyerhaeuser's new kraft mill in Everett, who is from Oxford Pulp & Paper. He was Moderator.

The quality panel (l to r): PETER WILKIE, Asst. Kraft Mill Supt., Crown Z, Camas; FRANK HAMILTON, Asst. Gen. Supt., Everett P & P Div., Simpson Logging, who was Moderator; PAT REITEN, Gen. Safety Supervisor, Simpson Logging, Shelton, Wash., and RALPH DICKEY, new Res. Manager in Seattle for Crown Zellerbach. Mr. Reiten is pointing to pot of gold at end of program to stimulate better supervisors' attitudes.

day to day and is largely shaped by the latest daily contact." He cautioned, "Never make the mistake of assigning a single responsibility to two persons instead of one."

Mr. Hamilton confirmed the success of a housekeeping program instituted by Mr. Reiten at the Everett P&P mill. Reiten stated he would welcome requests for information.

A 38-year veteran in the Crown Zellerbach organization, Seattle Manager Ralph Dickey, told the group how the salesmen view the meaning of "specifications." Mr. Dickey left no doubt as to the behind-the-scenes activity conducted by the sales department to constantly research and appraise their own as well as competitors' products. When they are certain they have found a better product, they contact the mills.

He said, "Production men are human and they are doing a good job but we are trying to enable them to do a much better job in the future."

CITES PULP & PAPER's ARTICLE—Mr. Dickey mentioned the examples of fruit wrap and pear wrap, which have been constantly increased in quality over the past few decades to a point where they are now a major factor in maintaining sales of boxed, shipped fruit; and he traced the popularity rise of facial quality tissue, from 10% of the market in 1947 to 17% in '48 and to 23% in 49. He foresees even greater percentage rises.

He referred to the lead article in the Dec. issue of PULP & PAPER as a good source of latest information on the tremendous expansion due in this industry in the next two years. (This article, *"Expansion is Coming–1955-57,"* is on page 51 of Dec. issue.)

COST REDUCTION—The "Cost Reduction" session was moderated by Gerry Willins, supt. of the new Weyerhaeuser Timber Co. Everett kraft mill. Mr. Willins said this industry has its greatest job to do in the field of human relations. He said, "Getting the best out of our people is a great field for improvement."

Kenneth Chapman, also of Weyerhaeuser Everett kraft, gave a paper on practical methods of cost reduction in sulfite and sulfate pulp production, two fields in which he has had many years' experience. A veteran officer of the famed Carrier Saratoga in World War II, he said: "Our current peacetime basis is a much healthier climate for reducing costs and for research."

He told of a display that goes around to all departments showing competitors' products.

One practical suggestion he advanced: Schedule "down time" in advance on the morning of a week day, when all workers are on hand and outside services and parts readily available. Workers should be standing by with proper tools and equipment for repair, maintenance or replacement.

COSTS NOT A "FANCY TOPIC"—Reducing costs in the machine room was discussed by J. O. Julson, manager of Weyerhaeuser's Springfield, Ore., pulp division, who said "Cost reduction is not a fancy subject for talking about but a necessity."

Stressing the human angle again, Mr. Julson said, "Proper handling of manpower is the first and most important phase of pulp and paper manufacture. Daily tonnage in the last 20 years has increased threefold because of man's action, not in spite of it.

"Study your organization—find good men who can be better. Few men have a real appreciation of their own or related jobs. We must build a strong organization of men to step into our own shoes when we are no longer in the picture," Mr. Julson related.

"A good supt. must learn to budget his time for current operation as well as for future improvement. He should make time to read trade journals and books and to talk with salesmen, many of whom know a great deal about their specialty."

His salient points: Every very small saving added to others will result in considerable overall savings; a supt.'s behavior is becoming more and more critical to successful operation.

Jack W. Weiblen, finishing room supt., Columbia River Paper Mills, presented views on reducing costs in the finishing room, which, he said, must "add to the quality of the paper," and is "greatly responsible for the success of sale of paper."

He stated that 10-11% of the price of paper is added by the finishing room. He mentioned that "shrinkage" in the finishing runs between 7 and 13% and that workers can help to reduce this figure if they know where the shrinkage occurs. Another cost saver is giving an accurate ream count to customers, rather than adding a few extra sheets "to make sure."

Group discussions on the last afternoon constituted the final technical session of the 1955 conclave. These were "free-for-alls" conducted by three veterans in the respective fields: Sulfate pulping—W. J. Shelton, Longview Fibre Co.; sulfite pulping—T. H. Grant, Publishers' Paper Co., Oregon City, Ore.; and papermaking—John M. Victor, St. Regis, Tacoma.

Ben Spaulding of John Bolton & Sons mentioned the excellent response that the Bolton Award was getting this year. Prof. George Taylor, Far East Dept., U. of Wash., Seattle, spoke on the topic, "Future of Communist China."

Warner Tells New Gulf States Mill Plans

Chips from sawmill slabs and trim definitely will supplement the use of both pine and hardwoods round wood as raw material for a new paper mill to be built at Demopolis, Ala., by Gulf States Paper Corp., its executive vice president, Jack W. Warner, told PULP & PAPER.

Commenting on the purchase of a site at Demopolis, long discussed in the South as a potential location for a new mill, Mr. Warner said an initial 250 ton unit is planned, with provision for expansion.

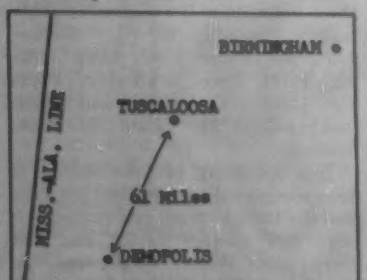
Mr. Warner stated that there is absolutely no foundation whatever for rumors of a Marathon Corp.-Gulf States merger and PULP & PAPER also learned authoritatively that Marathon has no intention of building a new mill of its own near Demopolis.

Mr. Warner said that soil structure studies and topographical surveys for foundation work on the new Demopolis mill will get under way in early 1955, and that mill water supply studies already have been completed.

The 1600 acre plant site purchased by Gulf States and its sales division, E-Z Opener Bag Co., is on the Tombigbee River, 6 miles downstream from the new Demopolis lock and dam. The new plant will be served by both the Southern Railway System and St. Louis-San Francisco Railroad. The property is traversed by U.S. Highway 80, as well as the Southern Natural Gas Co.'s pipeline and an electric power line.

"Planametric surveys are underway to re-establish the boundary lines of the property as well as to provide a grid-map upon which the topography of the tract will be super-imposed," said Mr. Warner. "These surveys will provide information necessary to determine the actual location of buildings."

Gulf States' present forest ownership of 300,000 acres is ample, for the present, he said to allocate at least 80,000 acres of fee lands to timber production for the Demopolis facility. The remaining 220,000 acres would continue to lend support to the Tuscaloosa operations.



SITE OF NEW Gulf States paper mill.

Big Changes at Crown Z

Sweeping changes in Crown Zellerbach management were announced in early December. Frank N. Youngman was elected president of Crown Z of Canada Ltd. and president of Elk Falls Co. Ltd. Reed O. Hunt becomes vice president of operations for the parent company. Peter T. Sinclair succeeds Mr. Hunt as vice president of manufacturing. Robert H. Young becomes vice president and general manager of Crown Z of Canada.

Other changes include the move of Edward H. Nunn, former asst. res. mgr. at West Linn, to Carthage, N.Y., as manager. Glenn O. King succeeds him at West Linn. Gus Ostenson becomes manager of the new kraft mill being built at Antioch, Calif., while Nick Boylon retains title of asst. res. mgr. at Camas but broadens his duties to include pulp and paper manufacturing, formerly handled by Mr. Ostenson.

Ray Dahl has been promoted to asst. mgr. at St. Helens division. E. W. Erickson becomes asst. to vice pres. for manufacturing, over pulping and new construction; H. H. Wymore, asst. to vice pres. for manufacturing, over converting; E. A. Paul, new director of industrial relations.

New Joint-Owned Firm

Rhinelander Paper Co. and Weyerhaeuser Timber Co. have formed a jointly-owned firm, R-W Paper Co., which will immediately build a new glassine greaseproof papers mill at Longview, Wash., served by Weyerhaeuser pulps. Folke Becker is president of the new company.

Ralph Powers Tells of Scandinavian Tour

Back from a trip to Scandinavian countries with a party of 28 Americans, Ralph A. Powers, president of Robertson Paper Box Co., Montville, Conn., declared that Finland must export its products to live, pointing out that in recent years it had depended on exports to Russia.

Addressing his colleagues in the National Paperboard Assn., he said business in Norway is restricted to 5% profit except where the government especially permits more. He visited pulp mills in Sweden. Mr. Powers was a NAM delegate to the International Manufacturers Conference in Paris and when it broke into groups for various tours, he chose Scandinavia.

Canadian Meeting

The 41st annual meeting of the Canadian Pulp and Paper Association will be held Jan. 26-28 at Montreal (Sheraton-Mt. Royal Hotel).

THEY CHART BROWN'S FUTURE

LAURENCE F. WHITTEMORE (left), President and Chairman of Brown Co., says that firm will concentrate all future production efforts in New England, where predictions are this industry will make increasing use of hardwoods. Up to $10,000,000 of $40,000,000 realized in sale of Canadian properties to Can. International (properties carried on books for $19,000,000) will be used to build kraft bleach plant and expand Berlin, N. H., mills.

A. E. HAROLD FAIR (right), new Executive Vice Pres. of Brown Co., said key to Brown's success depends on employes —urged them to help keep New England industry competitive by eliminating waste and inefficiency.

Three Mergers of Companies; Involve Famed Paper Families

In the Dec. 1954 issue of PULP & PAPER, a lead editorial (p. 3) predicted several mergers of paper companies, and told what the beneficial results would be.

Now comes news of four:

Diamond Match's Plattsburg, N. Y., 5-machine mill to be sold to James C. Wemyss interests, head of Groveton Papers Co., Groveton, N. Y., and also Rushmore Paper Mills, Natural Dam, N. Y., and Lotbiniere Pulp & Paper Co., Nicolet Falls, Que.

Negotiations to merge Racquette River Paper Co., Potsdam, N. Y., with Orchard Paper Co., St. Louis converter.

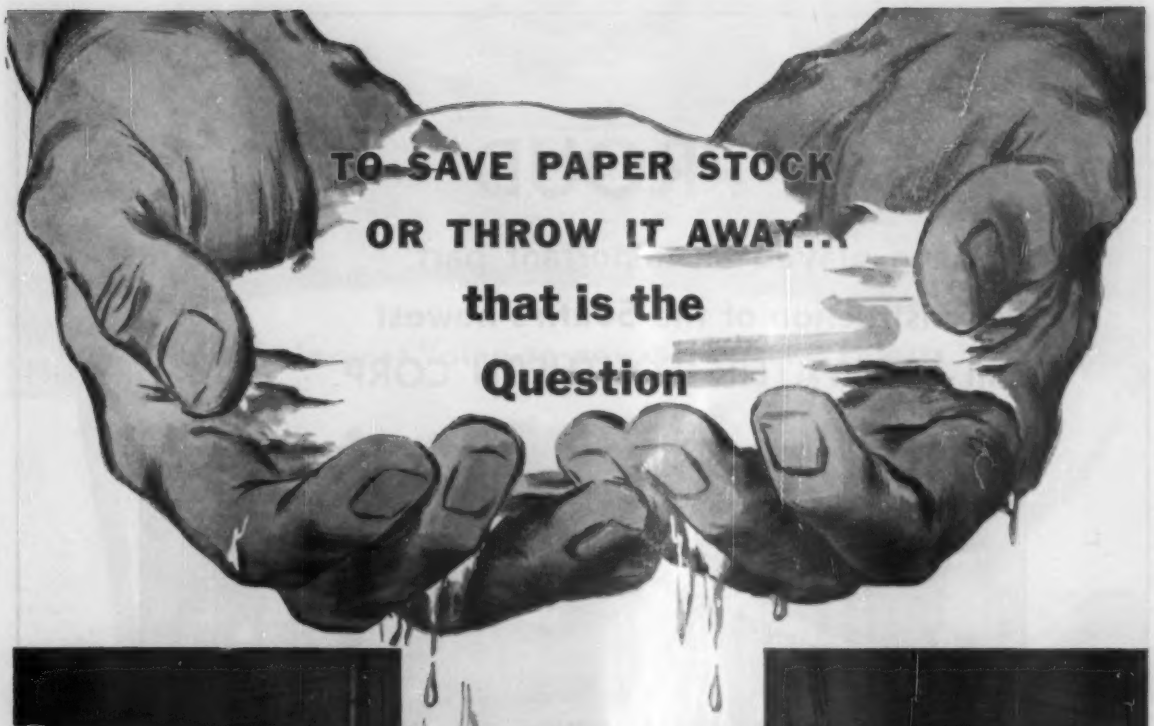
Champion Paper & Fibre Co. has acquired Mid-West Bottle Cap Co., Belvidere, Ill., a converter.

Mapes Consolidated Mfg. Co. is to merge with Central Fibre Poducts Co., Inc.

Other mills were reported for sale. Other even bigger mergers were still in the talk stage.

Gaylord-St. Regis Combine Negotiations Ended

Edwin J. Spiegel, president of Gaylord Container Corp., told PULP & PAPER that negotiations between that company and St. Regis Paper Co., looking toward a long-term supply contract and other working arrangements, have been terminated and no deal of any kind was consummated.



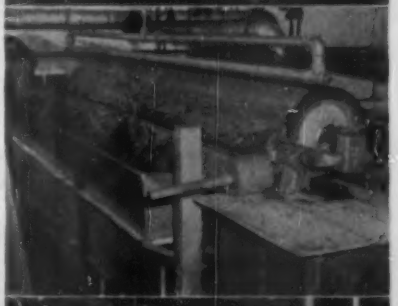
TO SAVE PAPER STOCK
OR THROW IT AWAY...
that is the
Question

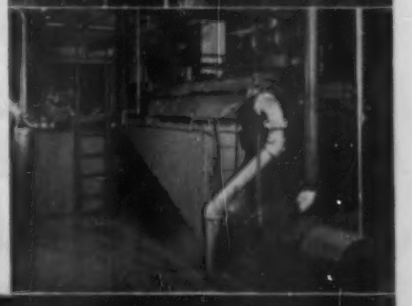
Pulp is expensive enough nowadays. Then, after you've put it through all that processing, it seems a shame to let some of it go down the drain.

That is why you need sufficient Bird Save-All capacity to take care of every drop of white water that leaves the machine.

Ask us to check over your stock recovery system and make recommendations and estimates if need be.

BIRD
Machine Company
South Walpole
Massachusetts





BIRD SAVE-ALLS

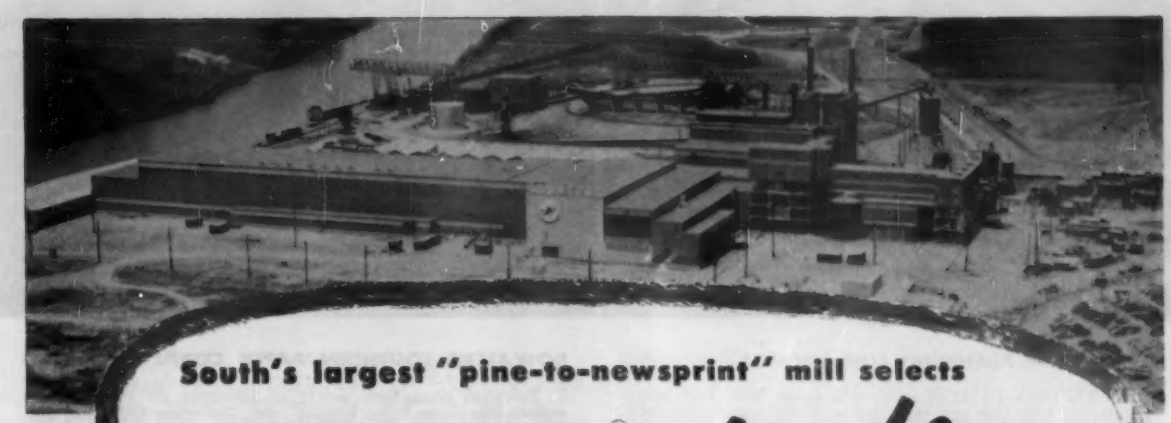
WE ARE PROUD

to have played an important part
in construction of the South's newest
mill – BOWATERS SOUTHERN CORP.

Stainless Piping Under Newsprint Machine at Bowaters

It was our privilege to supply all welded stainless steel process pipe and fittings through Grinnell Corporation, piping contractors, as well as many items of miscellaneous fabrication including tanks, chutes, grinder flume gates and dams.

BRISTOL METAL PRODUCTS CORP.
BRISTOL, TENNESSEE



South's largest "pine-to-newsprint" mill selects

ERKOTE® Mastics

to insulate and weatherproof these steel tanks and supports

Bowaters Southern Paper Corporation protects vital operating equipment with Erkote Mastics

In the heart of the Tennessee Valley, Bowaters Southern Paper Corporation's giant plant at Calhoun has an initial annual capacity of 130,000 tons of newsprint and 55,000 tons of kraft pulp. To provide surface protection for the vast tankage facilities at this modern new mill, over seven carloads of Erkote 2X Corrosion Resisting Mastic, Erkote 3X Insulating Mastic and Erkote Vaporseal were applied to storage tanks, their structural steel supports and other steel surfaces. The tank areas shown at the right are only part of the equipment coated with Erkote Mastics to guard against moisture, vapors and corrosive action.

Maintenance-free protection that lasts for years

In pulp and paper mills, in refineries, in every industry where insulation, corrosion and surface protection are a problem, Erkote Mastics are being used successfully under the most severe conditions. They are applied in one seamless application that bonds firmly to practically any surface, and they are not affected by unusual climatic conditions and thermal changes.

Complete responsibility for every application

We manufacture our own mastic products, and furnish our own trained crews to apply them. When you select Erkote Mastics, you can depend on one responsible source for both the materials and the workmanship!

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IN LONDON, PLANNING FOR AMERICA

JOHN KIRWAN-TAYLOR (left), who made New York financial arrangements for new mill, discusses the project with SIR ERIC VANSITTART BOWATER (right), Chairman of The Bowater Paper Corp. Ltd., in latter's office at 9 Park Place, St. James, London. Unhappily and unwillingly, Sir Eric was forced by war wounds in 1918 to give up an army career. Instead, he saved from probable demise a paper merchant firm and built it into one of world's biggest pulp and paper producing companies. The man across table, then Director of London & Yorkshire Trust, was link with Morgan Stanley & Co., New York, through which finances were arranged for Tennessee mill. Now he is a member of Bowaters.

BOWATERS SOUTHERN PAPER CORP. DIRECTORS

In Bowaters companies, nearly all Directors are working Directors like these three looking over Tennessee mill drawings (l to r): GEORGE ROBERTS, Chief Engineer, a Lancashireman, intimately concerned with its construction, who now directs a $28,000,000 expansion of the British mills; ARTHUR BAKER, 50-year veteran of papermaking, founder of Britain's "Tappi" and still after many years the President of UK Employers Federation of Papermakers and Boardmakers, who led the survey team that picked Calhoun, Tenn., site, and KENNETH N. LINFORTH, who in 1946 succeeded Mr. Baker as Director of Bowaters' Operations.

Bowater of England Builds Its Biggest Pulp

From a small London paper merchant firm, Bowater is now one of biggest manufacturers with mills in six nations

● In the 1920's, Sir Eric Vansittart Bowater became managing director, then chairman, of a family paper business without any papermaking plant and with capital of about $500,000. His grandfather founded the merchant firm in 1887, and Sir Eric took over when his father, Sir Frederick, died in 1924. Today he heads 40 Bowater companies, owning 10 paper mills and many subsidiary factories in six countries, with millions of acres of timber reserves. Bowater properties are valued at $225,000,000. There are over 30,000 stockholders.

Our new mills in Tennessee stand as evidence of the co-operation that can be achieved in financial, industrial and technical fields between the two great English-speaking peoples.

Eric I. Bowater

Bowater is the biggest newsprint manufacturing company in the world, and yet its profits in insulating wallboard and packaging products and specialties have leapt ahead of those in newsprint. World War II taught Sir Eric, to use his own words, "never again to be caught standing on a single leg on newsprint." Bowater also has a fast-growing coated printing papers market.

Bowater also sells sulfite pulps from Newfoundland and now has a marketable quantity of kraft pulp from Tennessee, though that is presently being wholly consumed by its European mills. It is expected this pulp will be vital to packaging paper plants in both U.S. and Britain. The sun never sets on Bowater markets—Australia, South Africa, U.S.A., many more.

THE "PRESS LORDS" HELPED—Lord Rothermere and Lord Beaverbrook, the two Canadian-born British peers who built up the greatest newspaper circulations in the world in Britain, were early partners with young Bowater, who persuaded them to buy out his two uncles after Sir Eric, only 32 years old, became chairman in 1927. The famed publishers often called his dreams of mills "castles in the air." But the young man soon put an end to that. He bought both of them out in 1932.

This was when his company already had its first mill in Northfleet, Kent (1925) and had already started doubling the size of the Mersey mill built in 1930. In 1936 another Kent mill, Kemsley, one of the biggest newsprint mills in the world, was bought from Lord Camrose. In 1937-9, two groundwood mills were bought in Sweden and another in Norway. But they were vulnerable during the war, so Bowater bought the Corner Brook, Newfoundland mill from International Paper Co. In 1940—while Britain was besieged—Bowater added a sulfite mill in Newfoundland.

This mill has been rapidly expanded (visited by PULP & PAPER editor on a private plane trip and described in P & P in Nov. and Dec. 1948 and Mar. 1949 issues).

EXPANSION CONTINUES IN "NEWFIE"—Expansion has almost been continuous at Corner Brook since the war. It didn't stop with the new big Dominion Engineering 284 in. No. 7 machine, which PULP &

Continued on page 66

NOT MANY HOURS FOR ANYTHING ELSE

In last few years, KARL O. ELDERKIN (left), Vice Pres. and Gen. Mgr. of Bowaters Southern, had little time for other thoughts than those he is discussing here with DENIS W. TIMMIS (right), only Englishman on the staff at Calhoun, Tenn., where he is Secretary and Asst. Treas. of new company. Mr. Elderkin, Canadian-born, who built and ran high speed newsprint machines in Newfoundland and Crossett Paper Mills, was responsible for many innovations at Calhoun, such as underwater log storage. If he can now arrange his time for it, he is due to become next President of Tappi in February.

MANAGING PEOPLE, MACHINES AND MONEY

Key men in Calhoun, Tenn., are VICTOR SUTTON (left), Mill Mgr. and Asst. to Gen. Mgr., and CHARLES E. OPDYKE (right), Controller and Treasurer. Mr. Sutton helped picked new mill site and was in day-by-day control work in connection with construction and equipment. A Canadian, he had been Administrative Director of Bowaters Development and Research Ltd. in London after holding key posts in the Newfoundland Mills and in Nova Scotia. As a side activity, he was successful in bringing opera stars and actors from New York to the Newfoundland mill town when a PULP & PAPER editor first met him there.

and Paper Mill in Land of the Dollar

Its newest pulp and paper operation in Tennessee is highlighted by color dynamics and semi-graphic panels

● Established on Hiwassee River in lush East Tennessee, within the public power area, Bowaters Southern Paper Corp.'s newsprint mill, now in operation over a half-year, epitomizes unstinted efforts to achieve high quality product with low cost maintenance and not subject to weather interference.

A PULP & PAPER editor's first impression on seeing the mill was a combined effect of a naturally attractive site and the expression of an architectural design of disciplined simplicity and beauty fashioned by technical excellence. The offices reflect modern, efficient trends, and the employe facilities building presents many desirable qualities.

These features are projected into the plant itself where offices for mill direction are located; and into the department superintendents' headquarters. Modern use of color is to be found, and, of course, application of American Standards Assn. safety color code.

Blending of engineering and architectural skill has created a satisfactory physical environment for each machine and its operators.

Startling as it is in its effect, the massive pulpwood handling installation does not quite obscure the fact that within the mill there has been full acceptance of technical advances.

Here, there is to be found a complete expression of instrumentation with each major panel carrying its flow chart diagram, the extensive use of constant head and proportioning devices to prevent stock crowding or impoverishment, complete tiling, creation of desirable air conditions.

By TVA navigation, chips as well as round wood are delivered. The wood delivery and handling story is told elsewhere in this issue, but it is noted that three Fibre-Making Processes 12 by 45 ft. drum barkers clean all wood before the underwater storage. One is for groundwood, one for kraft, and the middle one can be used either way. The 500-ft. pond is divided for groundwood or kraft storage.

A Link-Belt gantry crane is used to recover the submerged wood. Chipping for kraft is with a Carthage chipper and the chips are stored in Stebbins reinforced tile silos. Merrick Weightometers measure the chips.

Wood for the groundwood mill is delivered to a Link-Belt 40-ft. turntable for inspection before being carried in a 1900 ft. flume, partly Stebbins Semplate lined, eight 84-in. Great Northern-Waterous grinders with top-loading device and hydraulic controls.

(FOR DESCRIPTION OF WOOD PROCUREMENT AND HANDLING, SEE PULPWOOD SECTION OF THIS ISSUE).

Grinders were furnished by Montague Machine Co. Each grinder is driven by a 4500 hp synchronous General Electric motor, separately enclosed and equipped with water coolers. Norton provided grinder stones. J. O. Ross Engineering Co. equipped the grinder room with heating and ventilating as well as an exhaust system for grinder flume and grinders. The exhausts from the grinders is spilled into the flume and the vapors are extracted from the grinder flumes by means of two exhaust fans.

Bull screens for groundwood came from Allis-Chalmers, consistency control equipment from DeZurik and instrumentation from Foxboro. Four primary and one secondary Cowan screens were built by Appleton Machine. Rejects are broken up with a Jeffrey hammermill and further treatment of these and Cowan screen tailings is provided by Sprout-Waldron drainers and disc refiners. Screen flumes were lined by Stebbins. Groundwood mill equipment includes ten 12-in. primary and ten 4-in. secondary Bird Dirtecs, and six Impco

Continued on page 69

BOWATER GROWTH

Continued from page 64

PAPER's editor saw start up six years ago. This past year, sulfite mill capacity has been increased, also stock storage and blending capacity. A new Foster Wheeler oil or coal high pressure 140,000 lbs. per hr. boiler has been added to five oil-fired boilers, two of 90,000 pph and three of 100,000.

A new Stebbins tile-lined Horton (Chicago Bridge) 51 ft., 17½ ft. diameter digester is the 9th in line, and structure is up for a tenth. G. D. Jenssen Co. provided two new sulfur burners, replacing old ones, new vaporizing equipment, a new stainless steel 50-ft. recovery tower for the relief system and other equipment. Stebbins lined four new blow chests. Three Ingersoll Rand (Bird Jonsson) knotters have been added to two in use. Sherbrooke Machineries built a third stainless steel washer for sales pulp and two new thickeners for final screening after the primary stage, where three new Waterous screens are added to two old ones. A new 6,000 kw backpressure from England will be installed in 1956.

Sir Eric is president of the Newfoundland company. G. S. Currie, A. B. Meyer and H. M. S. Lewin, general manager, are vice presidents. G. H. Carson is director of operations. Gerald Penney is mill mgr., Lyle Lang, gen. mill supt., and M. C. Collins, chief engineer.

The Bowater investment in the Newfoundland mill has exceeded $40,000,000 and it now produces 310,000 tons of newsprint and 55,000 of sulfite yearly, mostly for the U.S.A.

TOP EXECUTIVES FOR BOWATER IN NEW YORK

CHARLES T. HICKS (left), a Texan, is Vice Pres. of Bowater Paper Co., Inc. He helped pick Calhoun mill site and negotiated many sales with Southern newspapers.

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Besides these, Bowater has acquired the Irish Wallboard Co. in Eire. And it has associated companies with a wallboard plant in Kemsley, a fiber containers plant at Croydon, fiber drums plants at Brentford and Disley, a bag plant at Bolton and the new Bowaters China Clay Ltd., in Cornwall, assures coating for its fast growing magazine paper production. Bowaters Development & Research Ltd. pools research for them all.

WHY TENNESSEE WAS CHOSEN—Bowater, already a major newsprint and pulp supplier to the fast growing U.S. population, picked eastern Tennessee as the logical site for its fifth big newsprint mill (400 tons a day) and second big chemical pulp mill (170 tons for shipment). Southern U.S. newspapers alone had tripled their circulations in 25 years. In five years they added 1,500,000 circulation. Now there are more than 400 papers in the 14 Southern states enrolled in the Southern Newspaper Publishers Assn.

British Columbia and Alabama sites were considered by Bowater. But Tennessee finally was chosen because of wood, water, power, freight, communications and other advantages. The mill is just 15 miles up the Hiwassee River from its junction with the Tennessee River, surrounded by corn, tobacco and pine plantations, which have replaced cotton as a crop on many lots and farms. Three big TVA hydro-electric dams are up the 150-mile course of the Hiwassee, where Bowater has purchased blocks of power on long term deals. A major gas line and Texas oil pipeline are near, as well as a 5,000 sq. mi. coal field.

HOW IT WAS FINANCED—The all-British equity capital of $15,000,000, sanctioned by the British Treasury, is supported by much larger American loan capital, to build this $60,000,000 mill, the biggest investment ever made in a single pulp and paper plant. It is, by a wide margin, the biggest single investment in world's history in pulp and paper making machinery.

First mortgage bonds were purchased by 12 insurance companies and five leading U.S. banks lent the balance in serial notes. Significant fact was that Bowater obtained approval of the U.S. government (in fact it had even asked and obtained such approval when it bought the Newfoundland mill and timber from I.P. nearly 25 years ago). Timber acquired by Bowater had been passed by for many years by nearby U.S. mills.

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COLOR PHOTOGRAPH BY JOHN S. HOLYOKE

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS., U.S.A.

Two New 252" Beloit Machines at Bowaters Southern Paper Corporation, Calhoun, Tenn., are producing high-quality newsprint. Machines include Beloit Air-cushioned Inlet, Suction Pick-up, Suction Wringer Roll for the pick-up felt, Air Guides for both wire and felts, Open-side Calender, and a clean-cutting "Model L" Winder with shaft-pulling equipment.

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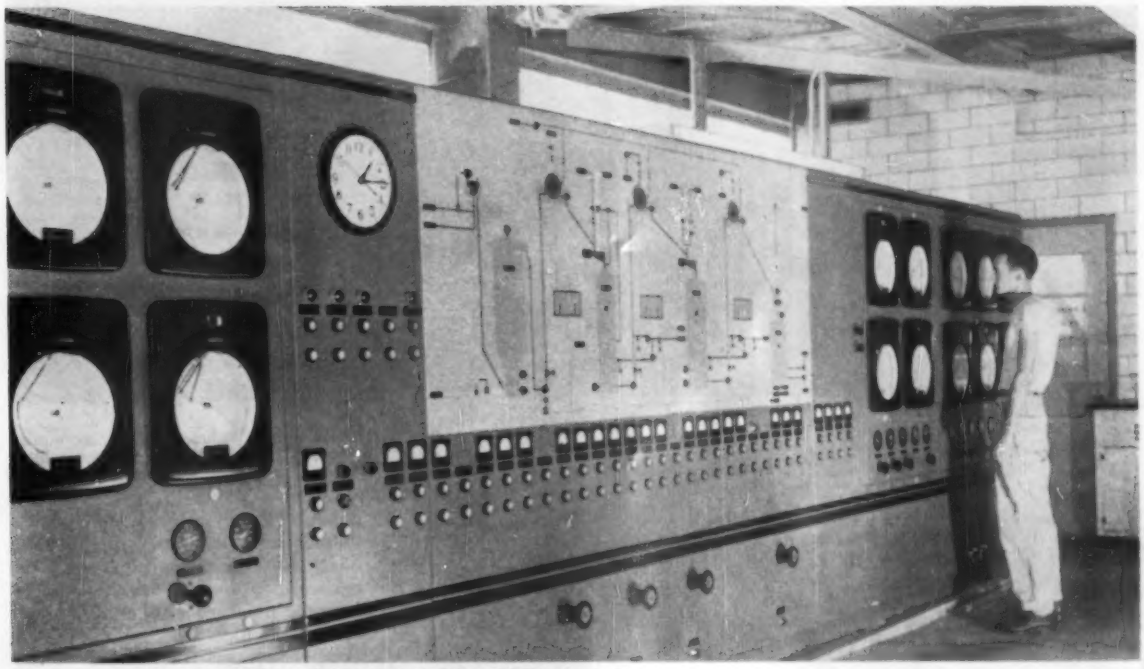


LOTS OF SEMI-GRAPHIC PANELS FOR BOWATER CONTROLS

This picture by PULP & PAPER of control board for bleach plant is typical of the many semi-graphic panels and automatic controls in the new Bowater mill. FOXBORO supplied the semi-graphic panels for brown stock washing, bleach plant and stock preparation. Flow chart with signal and warning lights a-plenty is centered on each recorder-controller instrument and motor control installation, with push-buttons for every flow.

TENNESSEE MILL

Continued from page 65

deckers. Two larger decker groundwood chests were lined by Stebbins.

SEMI-GRAPHIC PANELS IN SEVERAL DIVISIONS—Instrumentation in the Bowaters mill is characterized by its diversity, and in major installations by the illustration on the panel itself of a flow chart showing the operation and relating instrumentation to the process.

Types of measurements furnished by Foxboro include those for indicating, recording and controlling purposes in temperature, temperature differences between two measurements, pressure, pressure differences between two measurements, vacuum, flow rate and integrated total, level, density, conductivity, pH, consistency, motor load, rpms, stroke rate, rate of temperature change, frequency of sheet break, etc. The instrumentation is predominantly Foxboro, particularly that pertaining to process control and recording. Additional instrument suppliers include Bailey, Brown, Fischer & Porter and Mason-Neilan.

Foxboro furnished "semi-graphic" panels for brown stock washing, bleaching and stock preparation. These panels serve primarily as a process guide to operators, particularly in the stock preparation section where a multiplicity of equipment and instrumentation is easily and clearly portrayed in correct relationship by this form of presentation.

All instrument measurements are color and number coded on the panels for easy reference to similarly coded indicators, recorders and controllers on adjacent instrument panels. Signal lights mounted within the graphic display indicate which pumps and drives are in operation. Push buttons, ammeters, rheostats and other electrical operating equipment have been strategically located on panels for maximum ease of selection and identification.

The great majority of instruments in the mill are conveniently and attractively grouped in cabinet type panel assemblies at central locations where they are most easily observed by supervisors and operators. This type of cabinet installation, often air purged, also serves another useful purpose in protecting the instruments from dirt and corrosion, in addition to providing a packaged unit for each section, completely piped and wired, ready for process connections.

Additional instrumentation by Foxboro includes:

A fully automatic brown stock washing control system is employed at the third stage to provide optimum economy balance between soda loss and evaporator loss.

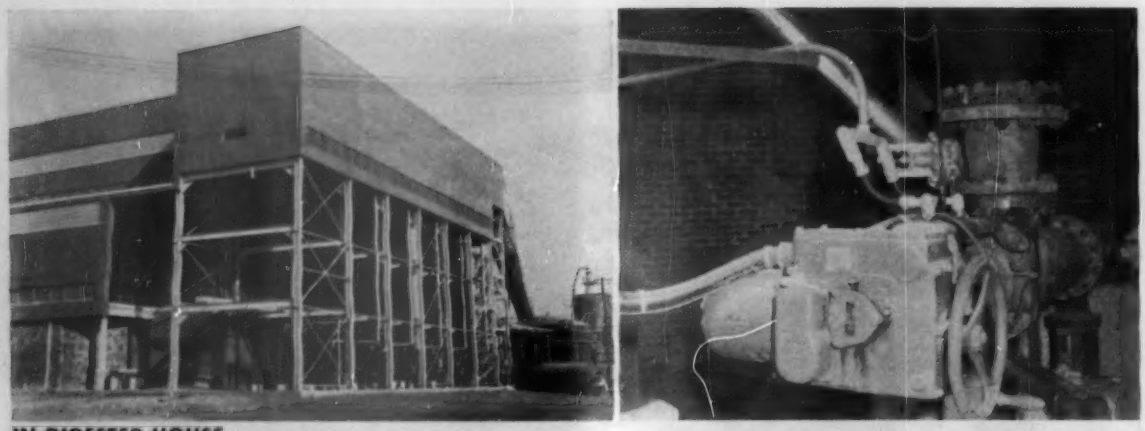
Controls were applied to the pulp grinders to improve pulp consistency and operate at higher capacity.

Instruments are also in use in the screen room, blow steam heat recovery, bleach plant, paper machine, pulp dryer, recovery, causticizing, and stock preparation sections of the new mill.

DESCRIPTION OF PULP MILL—Bowaters has five 3300 cu. ft. capacity Chicago Bridge & Iron digesters, with space provided for a sixth. They are made of A-285 Grade B fire box steel with a 2-in. shell, using extra thickness to meet corrosion problems. Each digester is equipped with an 8-in. electrically controlled Yarway blow valve. Blow tank capacity is three blows. Cooked stock sampling is effected with a Murco-Mosinee automatic digester stock sampler. Digester heat recovery system and crude turpentine recovery system were by Foster Wheeler.

Stock from blow tank passes to Jonsson pre-knotters then to three 8 by 16 ft. Impco vacuum type drop leg washers. Space has been provided for a fourth. Washers have J. O. Ross Engineering hood and exhaust units made up of standard panels but with counters of stainless steel bolts for attaching asbestos sheets to the iron frames.

Accepted stock is delivered to a 100-ton capacity Stebbins lined steel high-



IN DIGESTER HOUSE
(Left) Digester house accomodates 5 CHICAGO BRIDGE 3300 cu ft. digesters with space for a 6th. But Bowater is already planning two additional digesters in 1956. STEBBINS tile chest, lower left, stores pulp. (Right) Digesters are equipped with electrically-operated 8 in. YARWAY automatic blow valves like this.

density storage tank having an Impco agitation system. Jonsson pre-knotter rejects fall by gravity into a black liquor measuring tank and moved from there with a Fairbanks-Morse pump to the digesters with the liquor fill. White liquor from recausticizing plant flows by gravity from a tank above the digester room floor.

The Foxboro digester liquor charging system is fully automatic and adjustable with push-button operation at the start of each cycle, thus providing flexibility in liquor make-up to meet varying demands as well as uniformity and accuracy of digester loading for maximum pulp uniformity. Cooking controls are fully automatic, including resistance bulb measurement of digester top temperature with an intermittent record of bottom temperature, both recorded on the same chart with digester pressure.

Standardization of pumps in the pulp mill has been effected with 84 Allis-Chalmers units. These are single-suction paper stock pumps (Type PW) for handling water, white water, liquors, and paper stock at ranges from 50 gpm to 7500 gpm. Representing six different sizes of pumps, this group requires only three different bearing bracket assemblies. Most are of bronze construction. They are Texrope driven with the shaft of sufficient strength for overhung sheaves.

Washed stock from high density storage is pumped through a surge tank at ground level and then through a DeZurik pan type consistency regulator to a blending tank preparatory to being pumped to the screen room where it is put through two primary "Mark A" Cowan centrifugal screens by Appleton Machine Co. These discharge by gravity to two 9 ft. 10 in. by 10 ft. valveless type Impco thickeners, thence to screened stock chest. Rejects from primary are discharged into a 8 by 18 ft. tank subsequently being put through an Appleton Machine Cowan Junior secondary screen. Stock to both Cowan screens is passed through DeZurik regulator boxes with constant level controls.

Tailings from the secondary screen are sent to a rejects tank and from there pumped through a Sprout-Waldron drainer and refiner thence to a primary rejects tank for recirculation and rescreening in the secondary system. Screens and deckers are located beneath the washer floor.

BLEACH PLANT PROCESS—Bleaching is effected in a 3-stage installation with Impco washers, double shaft mixers, and other accessories. Chlorinization stages is at high density with other stages after dilution to 2½ consistency. The last washing stage has been arranged to permit its use with an SO_2 stage. Provision has been made for another caustic, hypochlorite and SO_2 stage or for chlorine dioxide for full bleach. All tile work in the bleach plant was from Stebbins.

Screened stock from wash room chest is pumped through two E. D. Jones "Imperial" Type-W plug jordans (with General Electric motors) for brushing, thence through a DeZurik cylinder VeePort valve for controlling flow from the Impco metering system so that a head of stock will be maintained in the line preventing entrainment of air into the chlorinization tower. Discharge of bleached stock to storage is through a DeZurik pan type regulator.

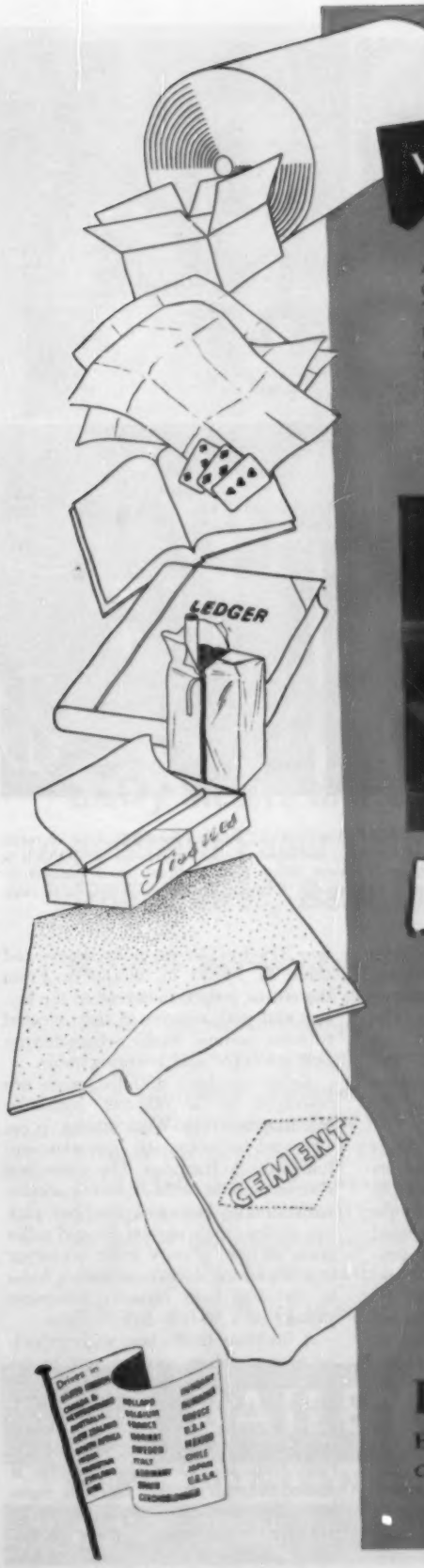
PIPING AND FITTINGS—Saran-lined pipe lines handle calcium hypochlorite for bleaching purposes and also chlorine gas where there exists a possibility of water or water vapor backing up the lines. Grinnel furnished standard and special piping, much of it prefabricated. Johns-Manville Transite pipe was used in process lines, and stainless steel is used extensively on the bleached stock lines. At some points, Saran-lined pipe and fittings were used with Saran-lined Grinnel-Saunders diaphragm valves. The hard rubber-lined pipe and rubber-lined valves were from Grinnell. The specialized Grinnell-Saunders valves had diaphragms of Neoprene rubber (Kel-F and TV types).

The extensive installation of Transite pipe and fittings for stock and white water were by Streed Fabricating Co. Inc., Gasden, Ala., and include corrosion resistant Strefco valves. Streed gave much assistance to piping and construction engineers. Many stainless steel fabricated parts were furnished by Bristol Metal Products Co. Grinnell did pipe contracting.

The washer floor is enclosed and pressurized with air, with exhaust fans for removal of vapors from washers and towers. For this purpose Transite piping was connected to tiled outlets from the washers. J. O. Ross heating and ventilating equipment was provided, and a special supply unit to remove any chlorine fumes, to provide air for a control room and control panel.

Bleach plant control room, laboratory, and pulp mill superintendents offices are glassed off from the operating room, and air conditioned. An elevator serves the building.

Extensive use of tile marks the pulp washing and bleaching areas, with Stebbins Engineering furnishing chests for screened brown stock, white water, washed stock surge, primary and secondary rejects, and accepted stock; two decker vats and filtrate discharge trough. In bleach plant Stebbins supplied three washer vats, chlorination tower lining, hypo tower lining, foam tower, seal box for cam towers, LD



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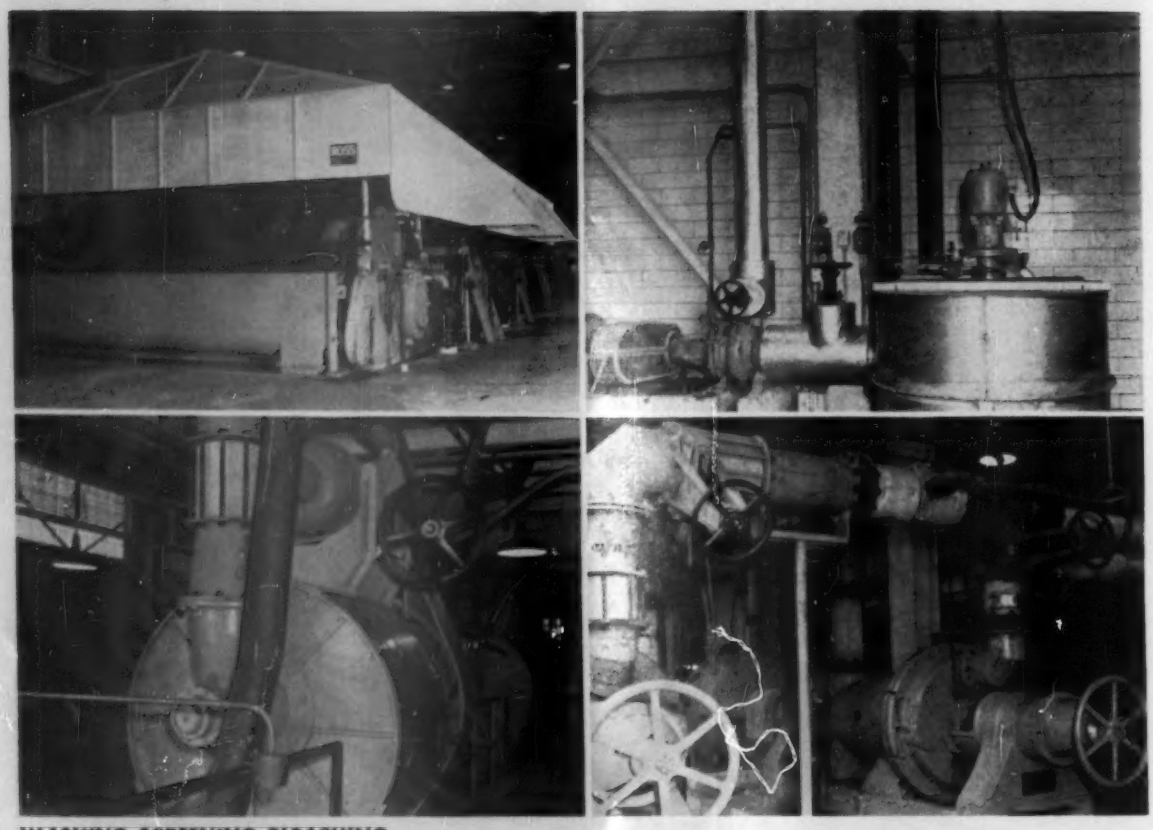


WASHING-SCREENING-BLEACHING

(Top left) IMPCO built 3-stage drop leg brown stock washing equipment which have ROSS ENGINEERING hood and automatic control. (Top right) New pan-type DeZURIK consistency regulator takes stock from high storage and dumps it into blending tank before being pumped to screen room. (Below left) APPLETON MACHINE made these Cowan screens which precede Impco deckers. (Below right) E. D. JONES & SONS W-plug No-wave filling jordans brush stock enroute to bleach plant, driven by GENERAL ELECTRIC 240 kva 450 rpm motors.

bleached stock storage tower, chlorine and caustic washer seal box, hypo washer seal box, and stock metering box. Stebbins furnished tiling for three bleach liquor storage tanks, bleach mixing tank, bleach clarifier tank, and two wash tanks in the bleach liquor making plant.

Plain black steel pipe is used through the digester, wash room, and recovery areas; also for the feedwater and hot condensate service. In general, Johns-Manville Transite pipe is used for stock and white water piping after the washed stock storage chest and for groundwood and stock furnish to the fan pump. From fan pump to machines and for screen overflow, stainless steel pipe is used.

For throttling and shutoff service on stock lines, Crane, Fabri-Valve, Ferguson and Powell stock valves are provided.

PULP DRYING AND FINISHING—Bleached or unbleached pulp drying is effected with a combination Impco high density feltless wet machine and a J. O. Ross Engineering hot air dryer. The wet machine is a 2-press type with 8 ft. by 156 in. vacuum forming cylinder with Stebbins tile headbox and three air loaded press rolls. The first main press has a grooved cast iron top roll and bottom roll, followed by a 20 drum 60-in. diameter dryer section, and a second press like the first.

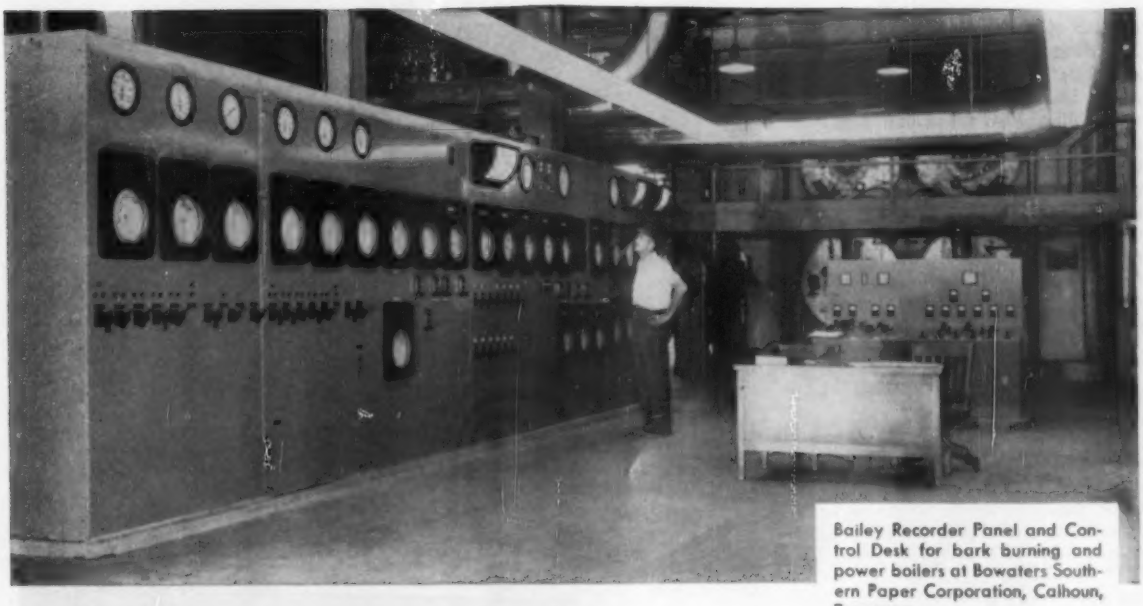
The Ross dryer receives the sheet through pinch rolls feeding into its nine passes. Forty Axiflo fans supply air circulation. Fresh air intakes to the dryer have filters; vestibules are cooled by fans. The dryer is designed to produce 200 tons of 90% air dry pulp per day. Overall dimensions are 45 ft. long by 20 ft. high by 30 ft. wide. Air is heated externally and supplied to the sheet through headers located between the passes. Briner economizer and water heating provide high efficiency This installation is rated the finest of its type to date.

Dry pulp is fed to cutting, laying and conveying equipment furnished by Lambs Gray Harbor and consists of heavy duty cutter and slitters that changes the 156 in. nominal trim into five 31¼ by 25⅝ in. pulp sheets and three 47 by 53 in. wrappers. From the cutter, pulp is delivered to the layboy and with a series of belts ejected to form vertical stacks accumated on belt conveyor and lowering table.

Bales weighing 450 lbs. each are conveyed to a 600-ton hydraulic Washington Iron Work baling press arranged for automatic operation and tying outside the press. The conveying system includes a 14-ft. swing section with storage belt and wrapper pick up, air float scale section, hinged roller press section, gravity roller conveyor to a lowerator stacker delivering bales to the 800 bale capacity basement storage on a 30-ft. conveyor there.

A Stebbins tiled chest with propeller type repulper receives wet broke. An E. D. Jones dry broke disintegrator is used. Stock to headbox is sent through DeZurik consistency regulator for controlling consistency. Pulp from the Jones disintegrator is passed through another DeZurik regulator. Over dryer is a 20-ton crane.

Drive for the pulp dryer was by Reliance Electric & Engineering Co. and



Bailey Recorder Panel and Control Desk for bark burning and power boilers at Bowaters Southern Paper Corporation, Calhoun, Tennessee.

Bailey at Bowaters

Bailey Meters and Controls help Bowaters Southern Paper Corp. to secure optimum performance from Power, Bark Burning, and Recovery Units.

■ Bowaters have insured a full return from their investment in steam generating, bark burning, and recovery equipment by the use of Bailey Instruments and Automatic Controls.

This equipment includes Distribution Meters, Three-element Feed Water Control, Combustion Control, Feed Pump Control, Safety Interlocks, Pressure-reducing and Desuperheating Controls. It helps operators to deliver uninterrupted service with top fuel economy and full operating safety.

When you call Bailey in on your metering and control problems you get the following advantages:

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BAILEY METER COMPANY

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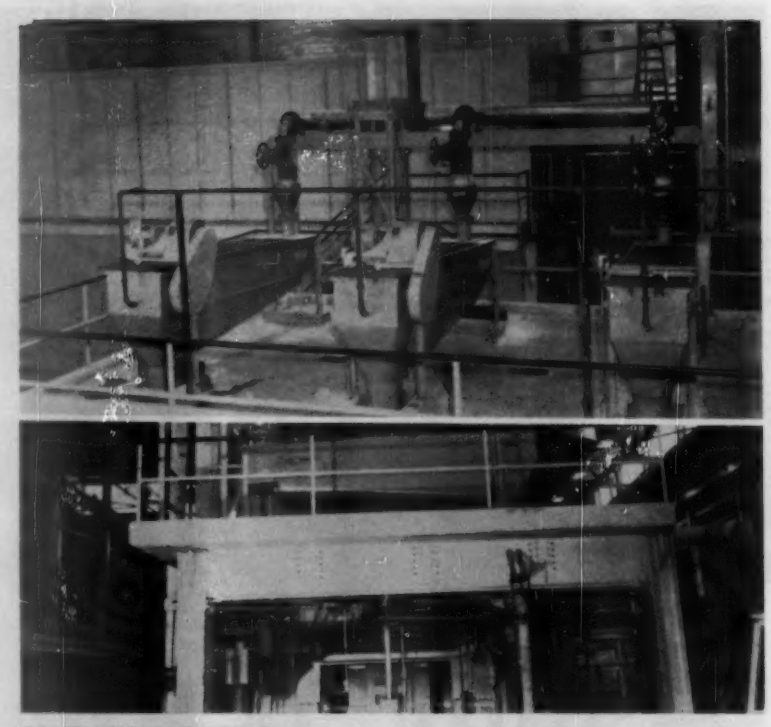
INSTRUMENTS AND CONTROLS

For Power And Process

consists of variable voltage equipment including a 1175 rpm motor generator set using a 200 hp induction motor and a 140 kw, 250 volt dc generator; an auxiliary M-G set of one 30 hp induction motor, 2–7½ kw booster generators and a 10 kw dc generator for excitation. All dc motors for drive sections are of Reliance Type "T" heavy duty 230 volt continuous. Other important components are the VSC electronic controlled exciter, operator's benchboard control station, dancer roll rheostats and VSR electronic speed regulator.

Motor sizes and speeds are: vacuum cylinder, 25 hp 1150/1470 rpm; first press section, 60 hp 1150/1725 rpm; pre-dryer, 75 hp 1150/1750 rpm; second press, 60 hp 1150/1725 rpm; pull-nips, two 3 hp 1150/1925 rpm; nine dryer passes, nine 3 hp 1150/1620 rpm; cutter, 25 hp 1150/1470 rpm. Also a 3 hp 1750 rpm AC motor for 5417 cfm blower. The vacuum cylinder motor may be started or stopped at any time; first press has a Reliance VSR speed regulator. Adjustable speed drives run from variable voltage generator with control provided by Reliance VSC exciter incorporating preset speed and rates of acceleration and deceleration. All motors include thermoguard relays with pilot lights. A limit switch in the dancer roll rheostat may be used to stop all preceding sections in case of a break.



SCREENING AND REFINING

Layout of SPROUT WALDRON reject screening and refining system for groundwood mill is shown in these two views. Top view shows where rejects from secondary screening are fed to Sprouts, which are below platform.

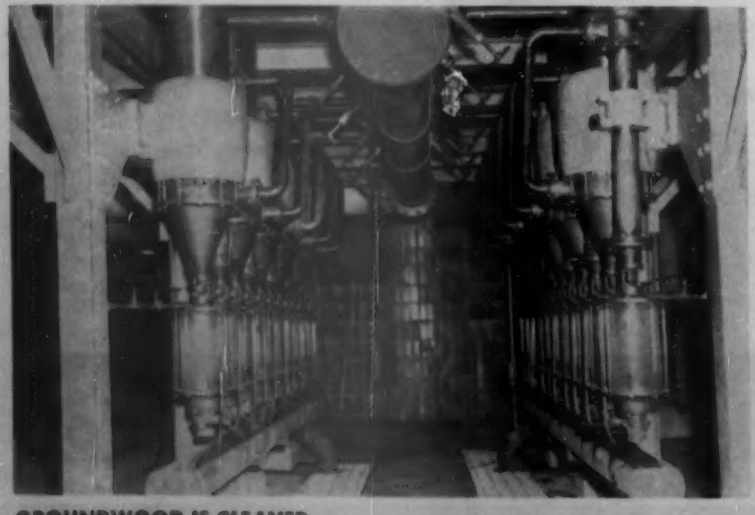
THE PAPER MILL—Separation of groundwood mill and paper mill is by mezzanine on which groundwood deckers are located. From this vantage point the two similar 254-in. high speed Beloit newsprint machines and their stock preparation equipment may be observed.

Nearest are the E. D. Jones & Sons "Royal" jordans, two for each machine and all four fitted with Accru-Set automatic controls to maintain a pre-selected power setting. Also from E. D. Jones are a pair of N1 high speed refiners for clearing broke from the 252-in. wide Liebeck disintegrators located in the dry end of each machine. An Impco vacuum saveall thickens the broke. Stebbins lined wire and couch pits, and provided reinforced structural tile stock and white water chests, fitted with Impco agitators. The stock and water pumps came from Allis-Chalmers.

Beyond the jordans are the five Bird screens and one vibrating rejects screen for each machine.

For each paper machine there is an installation of five DeZurik consistency regulators, assuring an even flow of constant consistency, and these, (along with others in pulp mill, bleach plant, pulp drying section, and groundwood mill) constitute probably the most complete of this type of control in any Southern mill.

In the paper mill these controls include pressure type installations each on semi-bleached kraft and groundwood for blending for the machine. A pressure type regulator with level control eliminates overflow from headbox back to machine chest and prevents entrainment of air. This is similar to the DeZurik closed stock system except that there is no control valve between this installation and fan pump. A pressure type regulator meters stock from broke disintegrator back into the system. A pan type regu-



GROUNDWOOD IS CLEANED

BIRD DIRTECS, ten 12-in. primary, and ten 4-in. secondary, remove shives and dirt particles from groundwood.

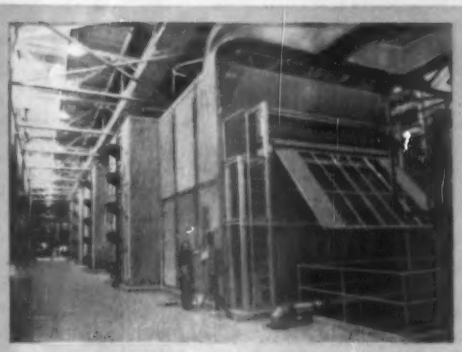
51 UNIT ROSS Air System for BOWATER'S

Largest installation of air handling equipment for a single mill!

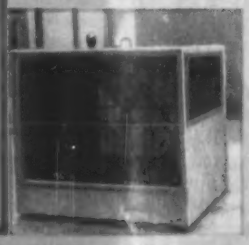
ROSS units are helping to insure maximum operating efficiency in all major departments of Bowaters new mill at Calhoun, Tenn.

Machines—17 units Machine Room—20 units
Stock Preparation—4 units
Pulp Dryer—2 units Grinder Room—2 units
Brown Stock Washing—2 units Bleach Plant—4 units

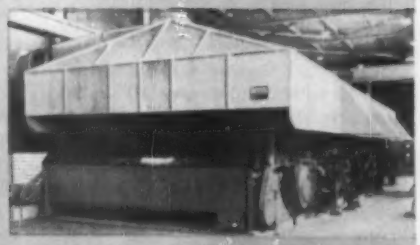
In addition to the ROSS Air System, the ROSS Pulp Dryer and the dryer sections of both machines are equipped with Ross Midwest Fulton Drainage and Steam Control Systems. The important assignment given to ROSS equipment in this notable Bowater project is one of which we are justly proud.



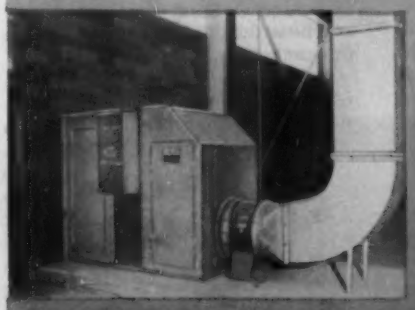
9-Pass ROSS Pulp Dryer



Main Cooler Outlet

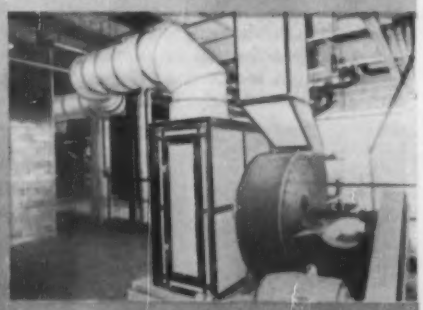


Brown Stock Washer Hood and Exhaust



Ventilating Apparatus in Control Room

Heating and Ventilating For Stock Prep. Room



Bleach Washer Exhaust Apparatus

ROSS SYSTEMS

J. O. ROSS ENGINEERING CORPORATION

MANUFACTURERS OF AIR PROCESSING SYSTEMS

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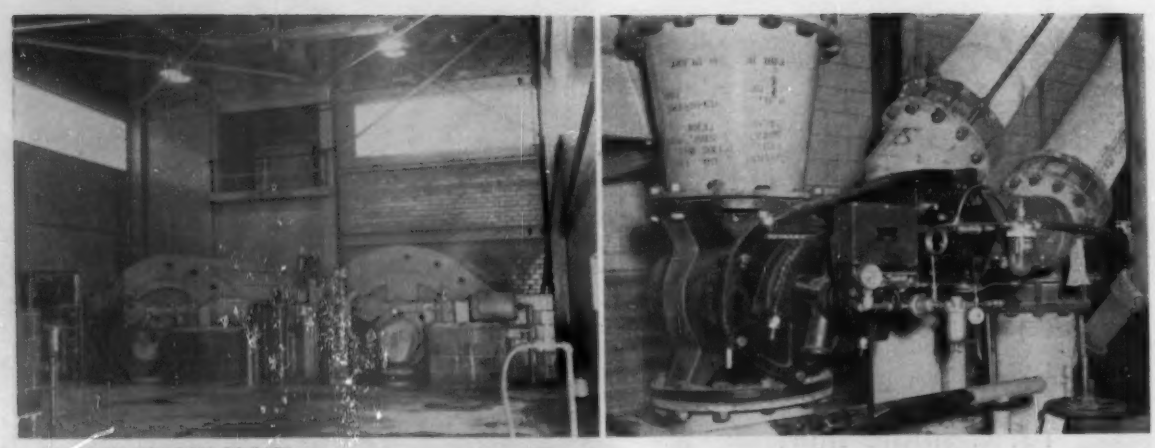


SCENES IN BLEACH PLANT

(Left) First and second bleach stages with IMPCO washers. (Right) DeZURIK cylinder-operated VeePort valve controls stock from metering system into bottom of chlorination tower. STREED FABRICATING CO. did Transite lined fittings.

lator is under the repulper discharge from the two saveall deckers.

Furnish from the 17,000 gpm Allis Chalmers fan pump passes through an air motor operated stream flow valve to enter the stainless steel lined headbox by means of a patented cross flow distributor. Constant stock level is maintained in the headbox by air pressure. Self-cleaning rectifier rolls are used for even distribution. Constant level is maintained automatically.

Fourdrinier wire is 254 in. wide by 117 ft. long. The Fourdrinier is removable and structural members are covered with stainless steel. The machines were designed for speeds up to 2000 fpm.

Outstanding in the press section is the much discussed Beloit suction pickup roll for transferring wet sheet to the felt, first proven on light kraft sheets and introduced for newsprint on a Port Angeles, Wash., rebuilt machine. Results showed fewer breaks and a sharp reduction in amount of chemical pulp required as compared with groundwood pulp. The two machines here are the first new units built for newsprint that have this feature in the U.S.A. All press section suction rolls have air-loaded packing strips. Resilient press loading is attained with air pressure, with separate control at the front and back of each press. The press section includes the suction pickup roll, suction transfer press, wringer roll, and two straight through suction presses.

Four sections on the dryer contain fifty-five 60-in. diameter rolls and eleven 60-in. felt dryers. Bird Machine furnished two Vickery felt conditioners for each machine. Lodding doctors are used. The dryer drainage system came from Ross Midwest Fulton and vacuum for suction boxes and suction rolls is provided by three H-12A and four K-10A Nash pumps.

Stowe-Woodward furnished all rolls for one machine, Raybestos-Manhattan, Inc., all rolls for the other. For each machine they include 20 table rolls, one lumpbreaker roll of 28 in.; one top first press transfer roll of 32 in.; two suction press rolls of 40 in.; one wringer roll of 32 in.; 15 plain felt rolls and 6 wormed felt rolls. Faces are 260¾ in. on suction press and 258 on others.

The open-sided calender stack was furnished by Beloit, and is equipped with a high pressure cooling unit consisting of a number of outlets arranged on flexible connections. Air supply is controlled from a console panel with automatic valves. This is similar to installations on Canadian machines and is the first of its type in the U.S.

Each machine has a Beloit heavy duty pneumatic reel with air cylinders affording complete control of both primary and secondary positions of pressure.

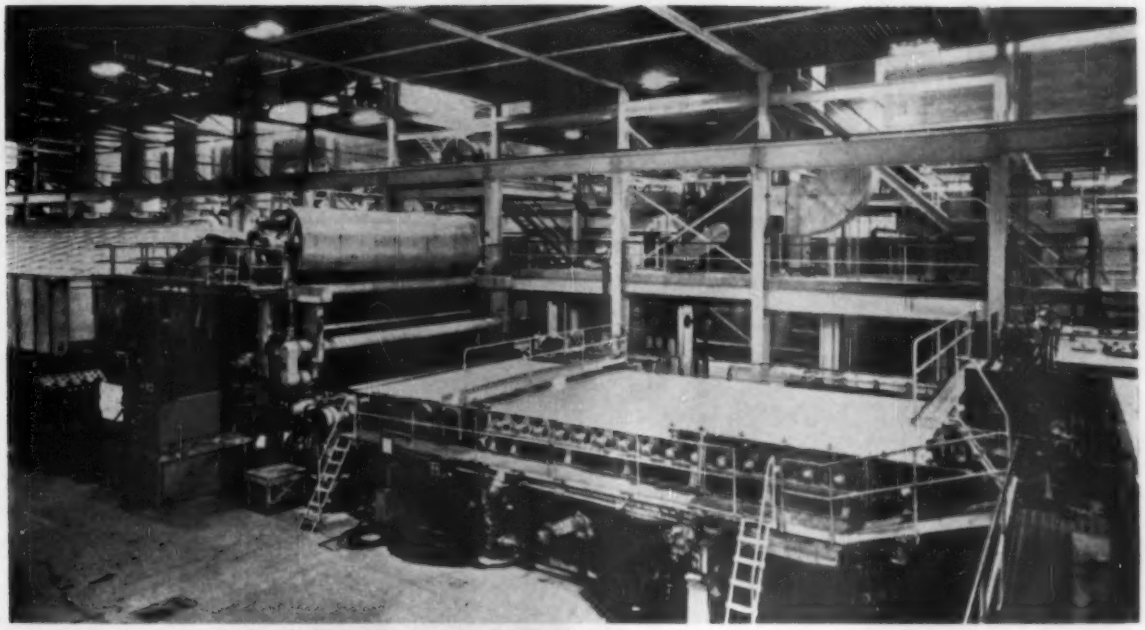
Transite hoods and felt drying systems for the machines were furnished by J. O. Ross. These include air makeup, heating and ventilating, motor cooling and trim conveying. Hoods are Ross standard design with seven exhaust outlets.

Each machine has a Ross-Grewin unit taking care of the machine section where the sheet is increasing in strength. Trim conveyors handle the ribbons from the two winders to the 75 ft. distant broke beaters, and also from the rewinders, 100 ft. distant from beaters. Drive motors are ventilated with filtered air drawn from control rooms. Heating and ventilating include seven units for roof area in newsprint machine, stock preparation and pulp drying rooms. Air makeup is accomplished by a unit backside of the machine and one in the basement. Summer ventilation man-coolers are appropriately placed. This was the largest Ross pulp and paper mill installation ever made in the U.S.

Fischer & Porter meters and instruments handle ratio controlling of kraft pulp and alum, also alum supply valves; and flow meters for chlorine

PAPER MACHINE VIEW

Looking toward headbox of BELOIT 252 in. wide Fourdrinier machine at Bowaters, designed for 2,000 fpm.



SUCTION PICK-UP ARRANGEMENT SPEEDS PAPERMAKING

View from above wet end of BELOIT 252 in. Fourdrinier newsprint machine. Note press section at left of Fourdrinier—here is where BELOIT suction pickup is located designed to make higher speeds possible with fewer paper breaks.

gas, caustic, hypochlorite, water filtrate in the bleach plant.

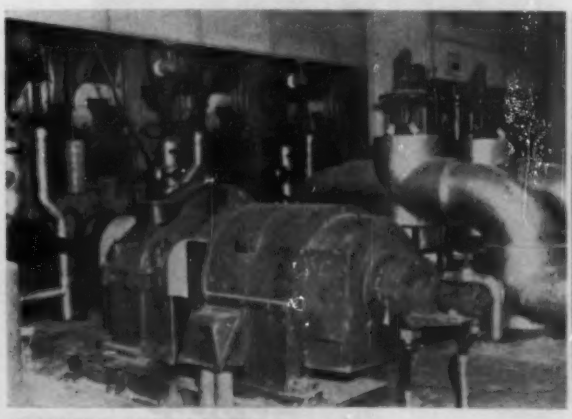
Farrel-Birmingham furnished the chilled iron rolls for the Beloit calender stacks, and also a 42 by 280 in. two wheel swing rest roll grinder. Each machine is served by a 20 ton Manning, Maxwell & Moore overhead crane.

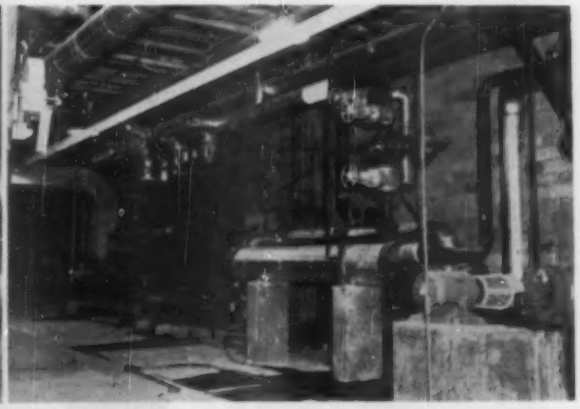
General Electric furnished two complete sectional drives for the paper machines, featuring electronic-amplidyne regulators. Each machine has 17 dc motors totaling 2090 hp, and 17 dc generators and amplidyne generators totaling 1615 kw. One main motor generator set supplies power to the wet end, and the other drives the dryer sets.

NEWSPRINT FINISHING—The Beloit Model L winder after each machine is the largest size in a new line. Each is built for speed up to 5000 rpm. The Beloit regulator maintains constant sheet tension during acceleration, steady operating speed, and deceleration by modifying as necessary the air pressure applied to the unwind stand brakes. The operator can set the tension at any desired point.

The winder is driven by Reliance Electric & Engineering equipment which includes a 75 hp motor for each of two drums. They draw armature power from a 125 kw generator. A load adjusting rheostat provides operator's adjustment of the front drum's motor for establishing desired load relationship between the two drums. The rider roll is separately driven, as also the slitters. Variable speed is accomplished by the variable voltage system with output voltage of main generator regulated by a Reliance VSR electronic voltage regulator.

Newsprint rolls are discharged to floor type transfer conveyors from the winder, and brought to a Williams & Wilson automatic roll wrapping machine and two roll header machines,





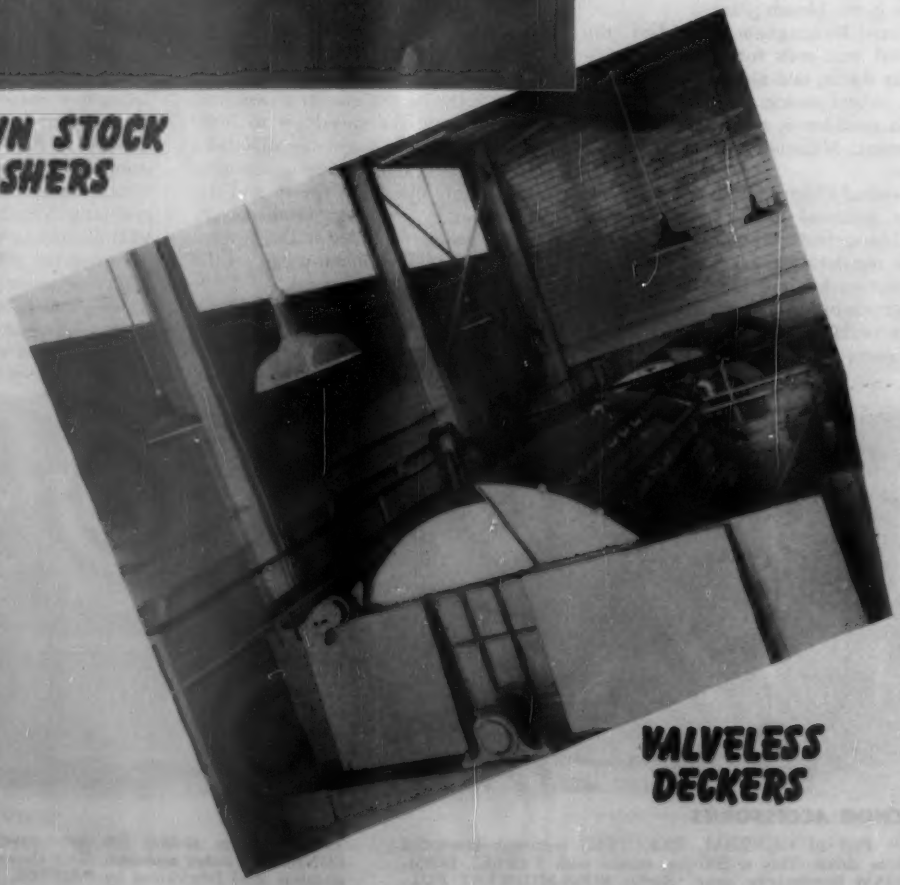
MACHINE ACCESSORIES

(Left) Part of GENERAL ELECTRIC sectional newsprint machine drive. This is 200 hp. motor with FARREL-BIRMINGHAM herringbone gear (Right) ROSS-MIDWEST FULTON drainage system for new paper machine has MASONEILAN instrumentation. This shows example of extensive stainless steel fabrication by BRISTOL METAL PRODUCTS.

IMPCO
EQUIPMENT AT
BOWATERS SOUTHERN PAPER CORP.

3	8' x 16' Brown Stock Washers
3	8' x 14' Bleach Plant Washers
2	9'-6" x 10' Valveless Deckers
1	156" Feltless Wet Machine
6	8' x 16' Groundwood Deckers
2	11'-6" x 16' Broke Thickeners
2	56" Vibratory Screens
2	Ten-Plate Flat Screens
2	Double-Shaft Mixers
1	Vibratory Knotter
1	Stockmeter
1	Foambreaker
30	Agitators
5	Circulators

BROWN STOCK WASHERS



VALVELESS DECKERS

BLEACH WASHERS

FELTLESS WET MACHINE

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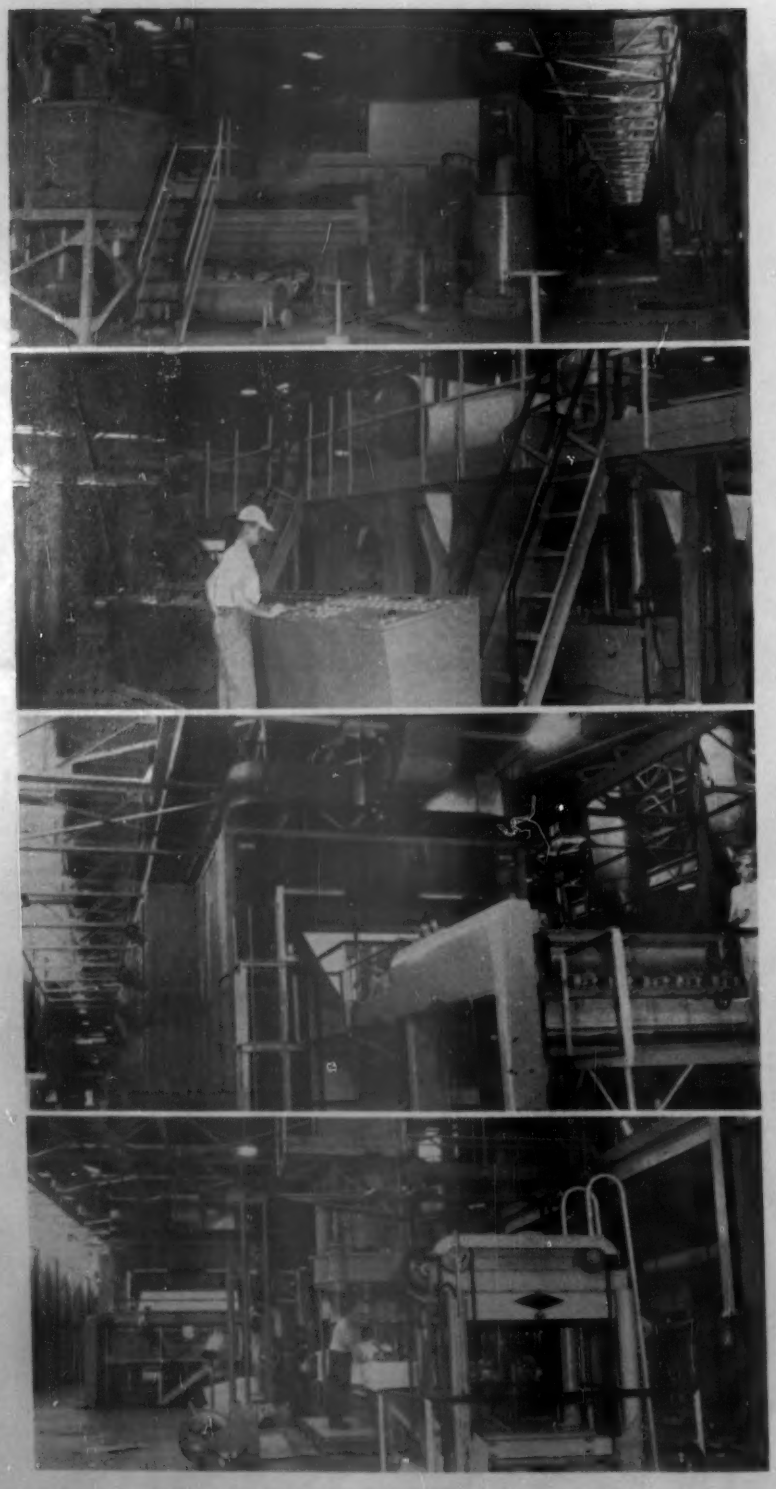
IMPROVED MACHINERY INC.

NASHUA, NEW HAMPSHIRE

SHERBROOKE MACHINERIES LIMITED, MANUFACTURE SIMILAR EQUIPMENT IN CANADA



WHERE KRAFT PULP FOR SHIPPING IS MADE

PULP & PAPER's own pictures—we are proud to say BOWATERS chose these views for their own company publication. (Top) View of IMPCO feltless wet pulp machine, followed by ROSS ENGINEERING 9-pass dryer. (Second) Side view of IMPCO wet machine. (Third) End view of ROSS dryer. (Bottom) And here is where WASHINGTON IRON WORKS hydraulic press bales pulp for shipping in elaborate LAMB-GRAYS HARBOR automatic finishing system.

thence to storage. First storage is on second floor with 1800 ton capacity and then the rolls are moved either to basement storage (capacity 1800 tons) or to shipping platform by a Lamson floor flush type conveyor. Fork lift trucks complete the trip into railroad cars.

UNIQUE ELECTRICAL SYSTEM—Located within the TVA public power area, the Bowaters mill has its electrical system designed for a dual supply source of energy with 20,000 kw generated by two 10,000 kw General Electric turbo-generators and 22,000 kw additional purchased. For handling the TVA purchased power, General Electric furnished a 30,000 kva transformer bank consisting of two 15,000 kva units. The primary distribution system consists of these two (GE and TVA) principal elements with an interconnecting tie circuit. Essentially, the TVA source serves the grinders and their auxiliary equipment, while mill generated energy serves other power consuming areas.

Electric power is distributed through the mill by a 13.8 kv primary system with 20 750 kva load center unit substations, three 2000 kva primary unit substations for stock preparation and a raw water pump house, two 3,000 kva primary unit substations for paper machines, one 4,000 kva primary substation for the main power plant, and a 1,500 kva load center substation for grinder room auxiliaries. All of these factors are General Electric Co. supplied, and it may be noted that use of interlocked armored type cable instead of conduit for the 13.8 conduit and 4160 grinder motor leads resulted in $20,000 in construction cost savings. The 13.8 kva primary distribution is unique for paper mills. At all voltage levels, the transformer neutrals are grounded.

From sub-stations, in general, voltage is stepped down to 2300-volt and 440-volt circuits. The utilization of the high voltage distribution to substations conforms to modern day economical power handling.

Electrical distribution, generators, switchgear, 2400 volt controls, and most motors of 200 hp or more, were by General Electric. In general, motors below 200 hp and general purpose 600 volt controls came from Westinghouse.

POWER AND RECOVERY—Black liquor from the washing process is sent to an installation of Goslin-Birmingham sextuple effect, long tube, rising film units evaporators with six bodies, all completely enclosed within the power plant building. The first effect is divided into 1-A and 1-B passes to promote heat transfer in this

effect because of the relatively small liquor volume. The feed is divided between the fifth and sixth effects, pumped from each into the fourth effect, and from the fourth effect to the soap tank where soap is reclaimed from the liquor. The liquor is pumped from the soap tank to the third effect, third to second, second to the 1-B effect, 1-B to 1-A, and from 1-A to flash tank where the sensible heat in the product liquor is recovered and utilized to increase the evaporation in the evaporator.

Original evaporator design was for 173,000 pph evaporation from a black liquor feed of 232,000 pph at 14% total solids. The concentrated liquor design is for 55% total solids. When operating at design steam pressure, the unit is capable of exceeding design rate 15% to 20%.

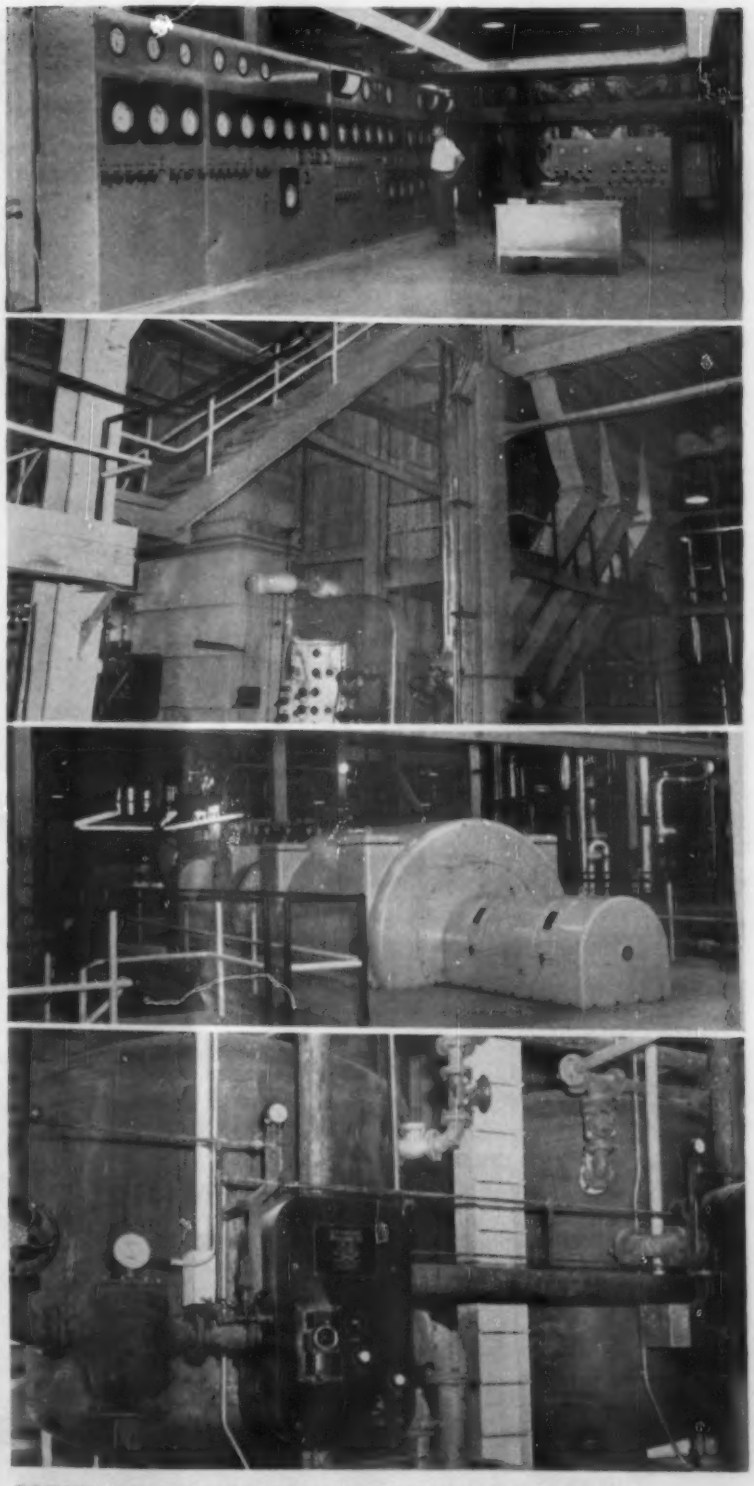
Condensed black liquor is moved by two Worthington centrifugal pumps with American Blower Corp. fluid drive (with fly wheel) to a D. J. Murray two wheel cascade evaporator serving the Combustion Engineering recovery furnace. This unit is designed for 316 tons or 950,000 lbs. of dry solids per day. An auxiliary arrangement permits use of either oil or gas.

Featured is the new water cooled decanting bottom and tangent type superheater. Included is a six row finned tube economizer and a steam air preheater. Predicted steam flow is approximately 123,000 pph at 975 psi and 825° F. Feedwater temperature is 280° F. and design pressure, 950 psi.

Two power boilers furnished by Combustion Engineering are of Type VU50X with furnace width of 17 ft. 3 in. and including an Elesco superheater, tubular air preheater, and a small steam air preheater to augment the flue gas air heater when firing oil. Each unit is equipped with four Combustion Engineering Type R burners, mounted in the front for firing oil, pulverized coal, or gas. The boilers are equipped with Prat-Daniels dust collectors. They are designed to generate 150,000 pph steam on oil or coal at 825° F. and 876 psi.

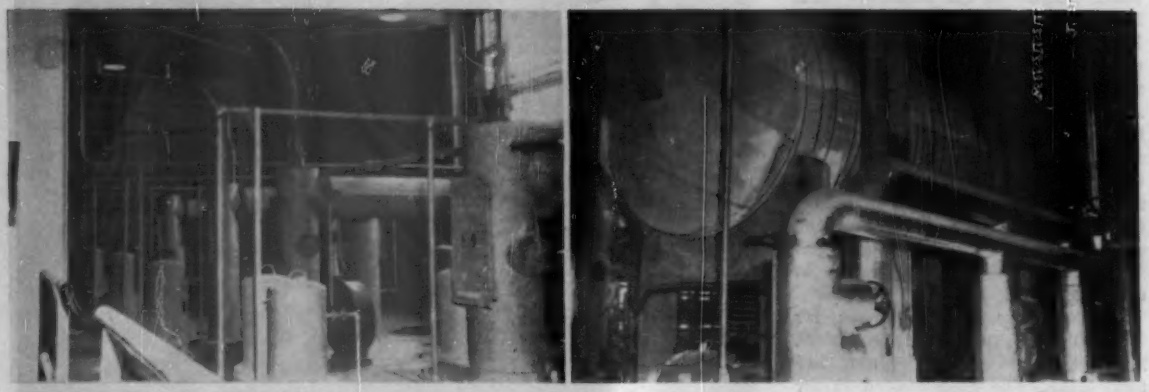
The Combustion Engineering VU type bark burner is equipped with CE continuous discharge spreader stoker. It includes an Elesco interbank superheater and tubular air heater. The unit is designed to produce 125,000 pph steam at 825° F. and 875 psi from all fuels in regular use. Eight Type T burners provide tangential firing of oil and gas, and provision has been made for future firing of coal. Other features include an overfire air system and cinder rejection for increased efficiency.

Boiler water pumped to the power



POWER AND RECOVERY PLANTS EFFICIENTLY FIT TOGETHER

(Top) Latest in BAILEY METER CO. control—upright panel and console (rear right). Here is concentrated all controls for bark burning and two power boilers, also turbine. (Second) COMBUSTION ENGINEERING bark burning boiler with fuel chutes at right. (Third) GENERAL ELECTRIC 10,000 kw, 13-stage, 3600 rpm turbo-generator, converting a-c current to conform with mill supply, partly from TVA. (Bottom) COCHRANE boiler water treatment installations (6 in all) with Cochrane hydromatic pilot valve positioner.



MORE RECOVERY AREA VIEWS

(Left) Electrical end of Cottrell precipitator furnished by WESTERN PRECIPITATION CORP. (Right) GRAVER WATER CONDITIONING Co. supplied 800,000 lbs. per day outlet capacity tray heater deaerating unit.

house is passed through a Cochrane six unit water treatment installation with Cochrane hydromatic piloting valve positioner.

Make-up water is added to the condensate storage tank along with mill returns and condenser hot well returns. Make-up varies between 20% and 50% of total feedwater flow depending upon operating conditions. Prior to entering the condensate tank the make-up water goes through a blowdown heat exchanger.

A condensate pump sends the make-up water to a Graver Water Conditioner heater operating at 5 psig with outlet capacity of 800,000 pph of which 20,000 lbs. is make-up. This unit is completely horizontal, 11 ft. diameter by 19 ft. long, built to ASME code with 4-minute storage. It is completed with external vent condenser and stainless steel trays.

Boiler feed water is furnished by three late type Ingersoll-Rand Co. 6-HMTA-6 centrifugal pumps of 1200 gpm, 3570 rpm, hd. ft. 2500, hyd. test 1500 capacity. Of these, one that is provided with steam turbine and electric motor drive serves primarily, with the other two with electric motor only as standby. Feedwater includes allowance for steam production and continuous blowdown.

Air compressors by Ingersoll Rand include four latest types. Ingersoll Rand supplied 5 pumps.

Bailey Meter furnished combustion control and safety equipment for the two power boilers and the bark burning boiler, furnace draft control for the recovery boiler, three element feed water control and metering equipment for all four boilers as well as control equipment for the black liquor pump hydraulic coupling system, pressure reducing and desuperheating control, distribution meters, and other accessory equipment.

The combustion control system for the power boilers is designed to control the boilers on an automatic basis when burning natural gas only, and to permit manual operation when firing by fuel oil, if that is ever required.

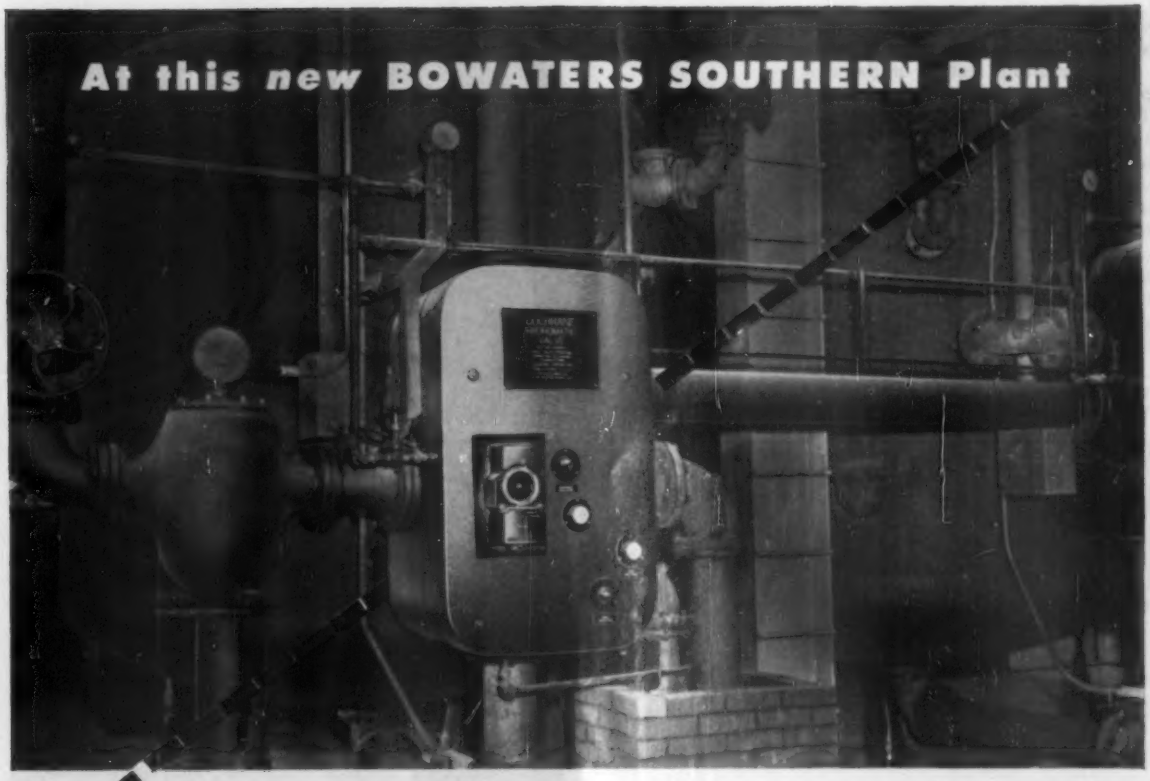
The combustion control for the bark burning boiler is designed so that when bark is being burned, it will be controlled manually by feeder control, with remote manual control of the forced draft and automatic control of the induced draft. When the boiler is burning natural gas the fuel feed and forced draft are controlled in parallel with readjustment of fuel feed on the basis of the metered gas-flow-air-flow relationship. Induced draft is

RECAUSTICIZING AND CHLORINE BLEACHING

Here is DORRCO recausticizing plant and chlorine bleaching installation. EARL PAINT Erkote coating protects tanks.

VIEW FROM DIGESTER HOUSE

FULLER Airveyor, at right, as seen from digester house, with lime kiln. Ahead, STEBBINS Semtile chip silo.



...Cochrane Demineralizes Boiler Feed-Water!

The largest newsprint mill in the South—the new $60 million Bowaters Southern Paper Corporation Plant at Calhoun, Tennessee—depends on Cochrane water demineralizing for efficient, economical boiler feed-water supply. This installation was engineered by J. E. Sirrine Company, Consulting Engineers, Greenville, S.C.

Water from the Hiwassee River is demineralized at extremely low cost by Cochrane equipment. It is supplied to the boilers at up to 700 gallons per minute, at a hardness of less than 1 ppm, a total electrolyte content of 2 ppm, and a silica level of 0.05 ppm *under any river water conditions.*

In this modern water conditioning installation, three pairs of Cochrane Demineralizer units, Cochrane Hydromatic Valves, and a Cochrane panelboard with associated control equipment provide completely automatic operation. When necessary, pushbutton permits manual initiation of regeneration cycle.

A Cochrane Continuous Blowoff System also provides added economies through recovery of heat from blowdown of power boilers.

Manufacturing every type of ion exchange and precipitation equipment, Cochrane offers a complete water conditioning service—a single responsibility for engineering, fabrication and sustained performance. You are assured impartial recommendations of equipment to meet performance specifications. For information on Cochrane Demineralizers, write for Publication No. 5800. Cochrane Continuous Blowoff Systems are covered in Publication No. 4800.

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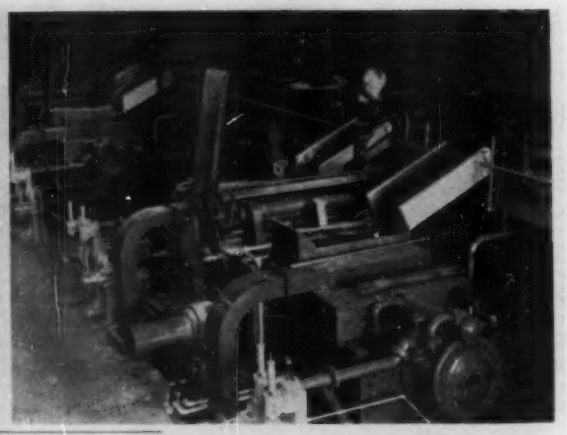
controlled automatically to maintain a set furnace draft.

An interesting feature of the new plant is the control room arrangement. The extensive use of the Bailey Mini-Line system of meters and controls is intended to simplify the work of the operator. By using indicating pneumatic and electric transmitters close to the measuring point and having indicating gages and recorders located in the control room, the system eliminates high pressure piping over long distances and concentrates a great deal of information in one room.

Yarnall Waring furnished 22 Yarway unit tandem blow off valves, a Yarway liquid level indicator on the feedwater heater.



GRINDING

NORTON stones are used in these 64-in. WATEROUS grinders built by MONTAGUE MACHINE CO. Bowater is already planning to add to the 8 grinders now in use.

Western Precipitator supplied two Cottrell precipitators. Each of these two units has two sections each of 13 ducts 8 by 18 ft. with necessary energizing equipment. The recovered salt cake from the precipitator will be collected and dissolved in four wet bottom pans through which concentrated liquor will be circulated and its chemical strength built up.

A fully automatic Foxboro black liquor evaporator control system maintains constant thick liquor Baume with maximum thin liquor feed.

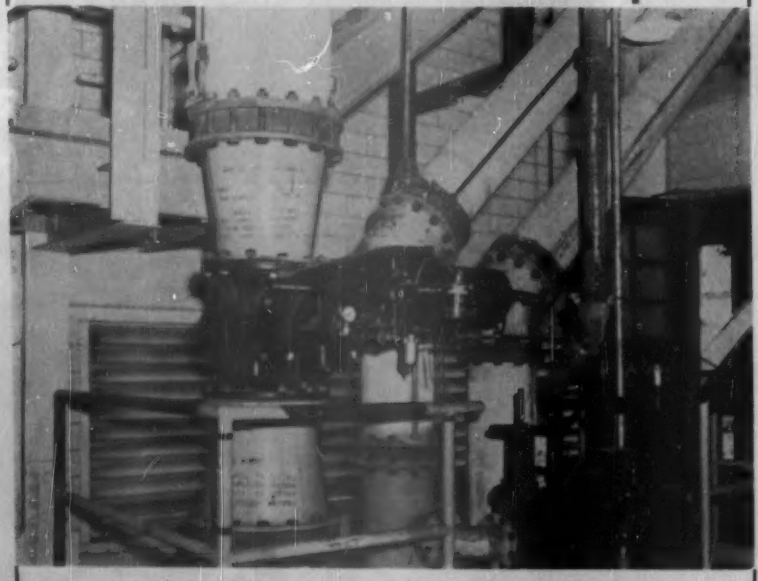
For the handling of salt cake a Fuller Airveyor pneumatic system is installed to unload cars and deliver either to storage or the feed hopper of the unit.

Causticizing is performed by a conventional Dorr green liquor clarifier, dregs, washing, lime slaking, white liquor clarifier, and lime mud washing systems. Designed capacity is 30,200 cu. ft. per day of white liquor, with 8 lbs. per cu. ft. of total alkali and 7 lbs. per cut. ft. of active alkali, all expressed as Na_2O. The sulphidity is 30%. Equipment can be operated up to a capacity of 38,000 cu. ft. per day. The clarifiers in this system are of the multiple tray type. An 80-ton per day lime reburning system includes a Traylor kiln, 9 by 250 ft. with an Oliver United mud filter.

A Dorr continuous recausticizing system for the production of 38,000 cu. ft. per day of white liquor was supplied for the chemical reclaiming plant.

WATER AND EFFLUENT – The raw water for plant uses is obtained from the Hiwassee River above the plant site. Three pumps have a total capacity of 18,000 gpm. A Dorr Co. treating plant, on a hill above the plant site, is of a modern gravity type with filtration utilizing flash mixing, mechanical flocculation, settling and

Congratulations
to
Bowaters Southern Corp.



Streed Fittings on Transite Pipe in Bleach Plant

BOWATERS SOUTHERN CORP.
Used Large Quantities of Transite
Pipe in Installations Throughout the Calhoun, Tenn., Mill

STREED FABRICATING COMPANY
Fabricated Transite Lined
Fittings for All Transite
Lines in This New Mill

STREED FABRICATING CO.
GADSDEN – ALABAMA
Strefco Corrosion Resisting Products For The Process Industries

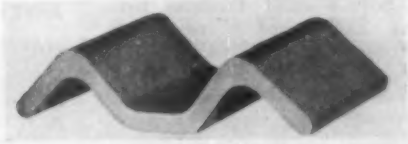
MEN WELL KNOWN IN SOUTH AND IN CANADA CHOSEN BY BOWATER FOR KEY POSTS IN NEW TENNESSEE MILL

Vice Pres. Elderkin chose men with outstanding reputations in the Southern pulp and paper industry or in Canada for key posts at Calhoun. Here are other key men:
TOP, left to right: W. J. PARSON, Paper Mill Supt.; E. L. COWAN, Chief Engineer; G. R. KOONS, Industrial Relations Mgr.; R. B. REID, Purchasing Agent; M. J. OSBORNE, Electrical Supt.; J. J. MOYNIHAN, Groundwood Supt.; T. C. BANNISTER, Sulfate Pulp Supt.

BELOW, left to right: OTHA WINNINGHAM, Mechanical Supt.; J. N. SWARTZ, Technical Service Supt.; R. R. EDGAR, Woods Mgr.; R. R. STREETY, Power and Steam Supt; R. L. MARTIN, Finishing and Shipping Supt.; W. H. JOUBERT, Traffic Mgr., and C. J. MAKI, Wood Handling and Yard Supt. Nearly all these appointments were previously reported in PULP & PAPER.

Bark Hard or Soft Woods up to 8′ in Length Wet . . . Dry . . . or Combined Dry and Wet with F.M.P. Welded M-Bar Barking Drums

3 Fibre Making Processes Inc. 12′ x 14′ Barkers installed at Bowater Southern Corporation, Calhoun, Tenn.



M-Bar—Hot Rolled

Exclusively used in F.M.P. drums. Welded and riveted to heavy ship channels.

148 — barking drum sales since 1947 — (118 — 12 ft. diameter x 45 ft. long; 19 — 12 ft. diameter x 67½ ft. long; 11 misc.)

Barking drums can be furnished with long or short column steel frames to customer's requirements Drumshells shipped completely shop-assembled.

FIBRE MAKING PROCESSES, INC.

Manufacturers of Barking Drums since 1915, welded drumshells since 1933

Tribune Tower, Chicago 11 **Russ Bldg.; San Francisco 4**

rapid sand filters, with concrete lined reservoir of 4,000,000 gals. capacity. Rated capacity of the treatment plant is 25,000,000 gals. per day.

Extensive facilities have been provided for handling mill effluent, including a 248 acre primary settling basin, a secondary disposal reservoir with 30-day detention capacity, and a 25 acre permanent disposal basin in a ravine on mill property. Part of the system includes a 150-ft. Dorr Co. S-7 special clarifier for treatment of 25 mgd of waste water containing approximately 13¾ tons per day of fiber. In the effluent handling, Bristol furnished a telemetering installation for approximating the flow of water through a 3 by 5-ft. submerged rectangular sluice gate.

Earl Paint Co.'s Erkote protective coating was used extensively throughout the tank. Bethlehem Steel Co. provided about 170,000 high strength bolts for use in place of rivets (⅞ of the fasteners used) and 7500 tons of structural steel.

ENGINEERS, ARCHITECTS—J. E. Sirrine Co., Greenville, S.C., of which D. G. Moon is pulp and paper mill division chief, were consultants. Contractors included Turner Construction Co., Oman Construction Co., Raymond Concrete Pile Co., Fraser-Brace & Co., and Roane Anderson Co.

Associated with J. E. Sirrine Co. in preparation of architectural treatment of the mill and design of the facilities building was Celli-Flynn, of McKeesport, Pa. This firm, headed by Mario Celli, did an unusual job in the external use of color dynamics. Also collaborating on color considerations were Socony Paint Products technicians. Each piece of equipment, each room was painted with one of 18 colors (selected after much study) to eliminate visual clutter, alter effective room proportions, absorb or reflect light, create low or high brightness, and to lessen eye strain.

With all this, four products account for 70% of paint gallonage. This simplification was accomplished largely by use of two ingeniously formulated intermediate coats. Equipment shop-coated with alkyd base red lead was finish-coated with alkyds, chlorinated rubbers, vinyls or epons. Structural steel shop-coated with oil base red lead and iron oxide was finish-coated with chlorinated rubber and alkyds; vinyls and epons could have been used if desired.

Consultant on wood handling for the mill was Willie Saint-Laurant, of Montreal.

The site contains approximately 1800 acres and is located directly on U.S. Route No. 1. It is served by the Southern Railway System.

Financing Story

Rated as largest newsprint mill in the South, the Bowaters Southern Paper Corp. also ranks as the largest undertaken in the U.S. by British capital since World War II. The $80,000,000 Tennessee mill was financed with $15,000,000 from the parent company, $37,500,000 loaned by 15 American insurance companies and the balance by five American banks.

This venture won a certificate of necessity from the U.S. Government under which 45% of the cost may be written off in depreciation during the first five years.

AT DEDICATION ceremony in Calhoun, Tenn. (l to r): PEYTON ANDERSON, Pres. of Southern Newspaper Publishers Assn. (the new mill supplies 188 newspapers in 17 Southern states); Gov. FRANK G. CLEMENT of Tennessee; LADY BOWATER and SIR ERIC V. BOWATER, Chairman of Bowaters.

Plans Big Expansion

By 1958, Bowater contemplates more than doubling capacity of its Tennessee mills, from present 400 tons a day of newsprint to over 900 tons. This would be done by speedup of 2 existing machines and addition of a third. The latter depends on the market—it already has sold its output for 15 years to 188 Southern newspapers.

This much is sure—a speed-up to 500 tons daily at cost of $1,500,000 by Aug. 1955. In 1956, a $2,500,000 outlay is planned for 2 more digesters, more grinders, etc., to bring production to 500 tons a day.

BIG EVENTS AT CAMAS, WEST LINN

Many friends recall when JOHNNY MOAK was engineer in a big Georgia mill and Master Mechanic at big Soundview pulp mill on Puget Sound, but now he is one of many who proudly wear a C-Z service pin. Now Plant Engineer at West Linn, Ore., he is shown at top left being awarded a 10 year pin. In picture, l to r, are Vice Pres. R. T. KIMBERLIN, Res. Mgr. MALCOLM J. OTIS and Mr. MOAK. Pins for 1,130 years service were given out.

Top right: DON L. OSBORNE, West Linn Personnel Supervisor, is proudly telling Oregon Governor's Industrial Safety Conference how Pacific Coast pulp and paper industry has reduced its accident frequency rate by 80% in 8 years.

Below is glimpse of CZ's big Camas, Wash., mill dinner where 197 pins were awarded. Mfg. Vice Pres. REED O. HUNT, who used to be Office Mgr. at Camas (at right) is presenting 35 yr. pin to HENRY L. LORENZ, No. 5 Machine Tender, as CLARENCE P. BROWN (extreme left), Supervisor of Paper Machines-Wrapping, looks on. Mr. Hunt recalled Camas started up in 1883 with only 12 employes. He predicted big expansion of this industry.

BETTER PAPER

through Hercules Chemicals

Hercules® Defoamer 4 kills foam economically and contributes to improved quality paper and board.

A 2½ pound brick of Defoamer 4 readily disperses in water to make 40 gallons. And the convenience of the brick form means no waste, no mess, and no heavy drums to handle or ship.

Where foam is a problem, we would welcome the opportunity to discuss with you what our defoamers might do to improve the quality of your product. Hercules defoamers are available in liquid and paste forms as well.

EYE APPEAL—This paper is being examined over a light box to check for formation and defects. The right defoamer can be helpful in obtaining good visual appearance of the sheet.

FOAM such as this impedes production, lowers the quality of paper and board. It can be economically controlled by the use of Hercules' defoamers.

CONVENIENT PACKAGE—Defoamer 4 bricks are available from any of Hercules' strategically located supply points.

Paper Makers Chemical Department

HERCULES POWDER COMPANY

965 King Street, Wilmington 99, Delaware

PP54-6

PULP & PAPER'S OWN PICTURES IN ST. REGIS BLEACH PLANT AT PENSACOLA

(Left) View of one side of bleach plant showing some of seven Impco washers. (Right) Looking across top of control console for Impco bleach washer at Fischer & Porter chemicals metering installation. Metering avoids maintenance problems.

St. Regis Splits New Bleach Plant

Achieves brightness of 80 to 85 as stock is treated separately for Fourdrinier and cylinder machines

● Completion in June of a complex, modern bleach plant for its No. 1 mill at the Pensacola (Fla.) Kraft Center demonstrated determination of St. Regis Paper Co. to maintain its production facilities strictly in the first rank.

The new plant displaces a 1941 small capacity unit. It is basically a 5-stage installation but presents the interesting operation of bleaching 250 tons per day through three stages, and then splitting the flow through two lines to furnish variable bleached paper grades separately to a Fourdrinier and a cylinder machine. There are actually 7 bleach towers and 7 Impco washers, in all.

In Sept., 1953 St. Regis announced it had embarked on a $4.5 million improvement of the No. 1 mill, including four separate projects: Modernization of the No. 1 144-in. trim Black-Clawson Fourdrinier paper machine; increased water supply facilities; expansion of screen room capacity; and construction of a new 250-ton capacity multi-stage bleach plant so devised that it could furnish pulp processed for making board and paper products on the Fourdrinier and the 92-in. Beloit No. 2 7-cylinder machine.

In the new bleach plant, pulp, treated separately to suit requirements of the two paper machines, achieves a brightness of from 80 to 85 points.

Four Impco bleach washers measure 8 by 12 ft.; one, 8 by 8; and two, 8 by 6 ft. Each is controlled from a Taylor console, with control equipment and push buttons for drives and pumps mounted thereon. Subsequent direct control is from a central panel located in an air-conditioned room for operational functioning. Control of chemical proportioning is through Rotameter and regulating equipment by Fischer & Porter, sets up at each washer to simplify operation and maintenance rather than consolidation in the central panel.

Bleaching stages are: Chlorinization, first caustic, first hypo, second caustic, and second hypo.

No. 1 washer, following chlorinization is rubber covered with stainless steel hood and exhaust fan to remove fumes.

All stock and water piping is of Type 316 stainless steel provided by W. L. Rives Co., Jacksonville, Fla. All bleach liquor and chlorine is handled with plastic pipe furnished in part by the U. S. Rubber Co. (Uscolite a light weight, high impact, styrene acrylonitrile copolymer blend plastics material) and in part by Streed Fabricating Co., of Attalla, Ala. (Vancor-2).

Liquor is handled in the bleach plant by Dorrco pumps. Consistency regulators and rubber lined valves came from DeZurik.

All valves involved in operating the bleach plant but not actually on the 5th (washer-control) floor are air-operated by a Taylor control instrument installation.

For greater effectiveness, the laboratory on the 5th floor has been combined with space allotted to the instrument and control panel, providing a commodious air-conditioned operating room with a glass partition facing the washer room for observation of operations and functioning of washer equipment.

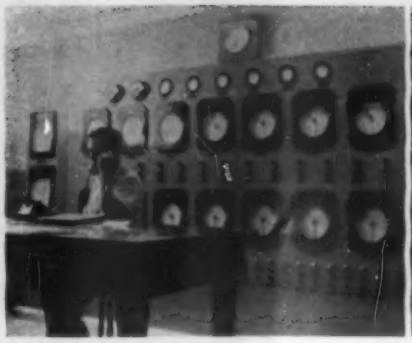
A feature of this room is a large mahogany work table at a height permitting operators to post their records and reports while standing erect. A high stool is provided for comfort.

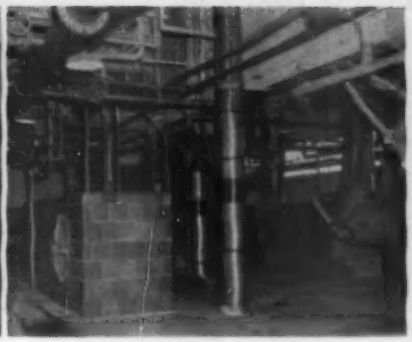
SPACE ALLOWED FOR ClO_2— Space and other engineering factors have been provided to facilitate the addition of a 6th, chlorine dioxide, bleaching stage.

Operating and washer floor is illuminated with special Westinghouse arc lighting that provides a daylight effect at all times. All motors on washers are for dc current, and provided with automatic variable speed control. The bleach plant is operated on each shift by a crew of three men. Operating crew is provided with locker and wash room. The plant is equipped with an Otis elevator. An intercommunication telephone system with a telephone on

MORE ST. REGIS VIEWS

(Left) Operating floor laboratory at Pensacola is combined with instrument control for the bleach plant. Here is Taylor control panel, with operator at high table, usable standing or from high stool.
(Right) Glimpse of 4th floor installations showing DeZurik metering box at left, Impco double drive mixers at right, and stainless steel piping from W. L. Rives Co.





each floor contributes to smooth operation.

Both 5th (washer) and 4th (mixer) floors are wholly enclosed and subjected to pressure ventilation by J. O. Ross Engineering Co. equipment to prevent introduction of extraneous dust and gases that cause rapid corrosion.

From final washers stock may be delivered from each system to high-density storage. For the larger system a belt conveyor delivers the stock to a 36 by 60 ft. Stebbins Semtile chest located outside of the plant structure. For the smaller system a stainless steel screw conveyor delivers the stock to a Stebbins tile-lined steel tank located within the plant structure. Both conveyors were by Link Belt Co.

On the 4th floor of the Improved Machinery, Inc., double shaft high-density mixers, each shaft having its own motor. Process steam at 50 lbs. pressure is supplied to the mixer, the flow being metered and recorded. The temperature of pulp in the mixer is automatically controlled.

Also on the 4th floor is the DeZurik metering box which controls flow of stock after the 3rd stage bleaching and washing when further treatment is desired on that part of it.

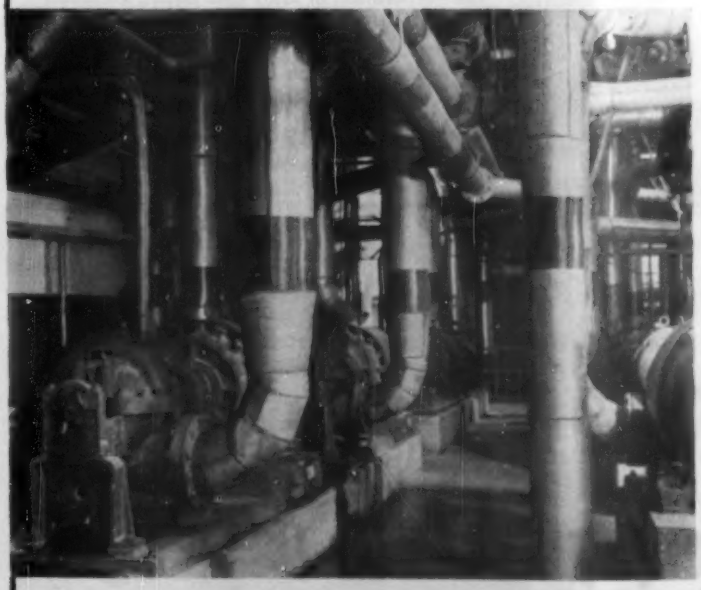
Water used in bleaching is from deep wells and is not treated but it is metered into the bleach plant and recorded.

For instruments and regulating equipment a Worthington air compressor and an Electrodryer furnish compressed air.

Electric equipment was furnished by Westinghouse with all motors of 75 hp and above operating on 2300 volts, and those below 75 hp at 440 volts. All motors in the plant are totally enclosed fan cooled chemical type.

Seal boxes on the 3rd floor are of tile, built by Stebbins Engineering & Mfg. and supplied with Chemstone covers. This material also is used for covers for metering boxes and access openings in towers. No wood whatever is used in the entire plant. On the 2nd and 3rd floor levels is the electric power center and both 2300 volt and 440 volt distribution control centers and washer variable speed drive controls enclosed in brick walls

STILL ANOTHER SOUTHERN MILL CHOOSES



"RIVES"

STAINLESS STEEL PIPING
WAS FABRICATED
BY RIVES
in the
NEW BLEACH PLANT
at
ST. REGIS KRAFT CENTER
PENSACOLA, FLA.

FOR ENGINEERING AND FABRICATION OF STAINLESS ALLOY OR MONEL PIPE & FITTINGS

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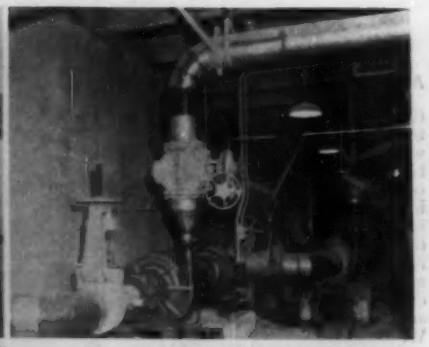
MORE ST. REGIS VIEWS



(Left) Goulds centrifugal pumps, in foreground, serving Stebbins seal boxes through Rives stainless piping. Driving motors are chemically tight enclosed, and fan cooled.
(Right) High-density bleached stock in storage is subjected to Impco removal system and then handled by Allis-Chalmers stock pumps, some of which show here. Pumps adjoin dilution chest. More Rives stainless piping.

and provided with independent pressure ventilation installed by the J. O. Ross Engineering Co.

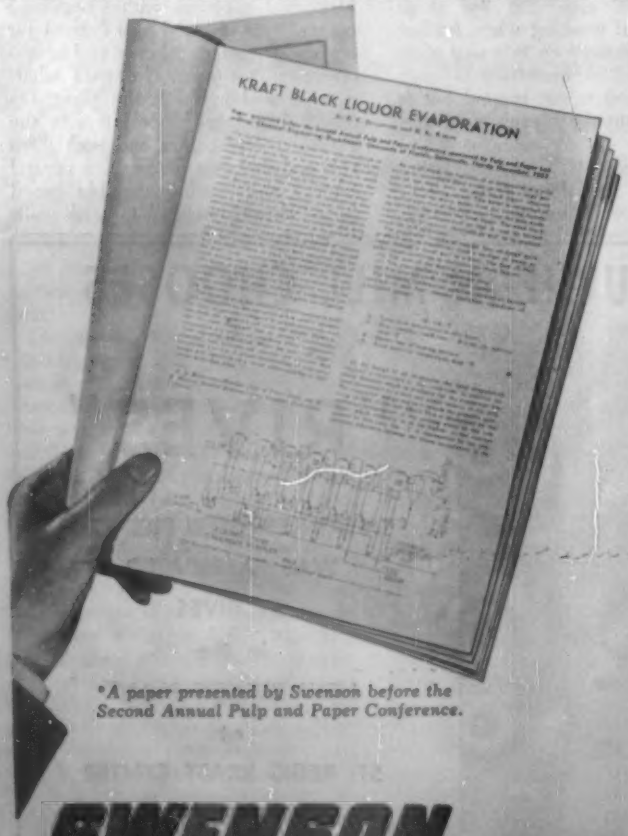
Pumps serving the seal boxes and other water supply and recirculation are located on the second floor. These pumps were furnished by Goulds and by Allis-Chalmers. Stock pumps adjoining the dilution chest on the ground floor were furnished by Allis-Chalmers.

All towers are of steel, tile-lined by Stebbins Engineering & Mfg. Co. and protected on exterior by Erkote, furnished by Earl Paint Co. Stock dilution chests are of concrete, also tile lined.

Standing separately are the two high-density stock tanks, each 60 ft. high, one of which is Semtile lined and the other of tile block construction, both by Stebbins.

Capacity of tanks is a 24 hr. run (each machine). Stock is delivered at storage tank tops by Link Belt conveyors. At the bottoms are Impco removal systems, using oscillating high pressure nozzles for sluicing. After dilution, stock is delivered to the paper mill by an Allis-Chalmers stock pump.

The Kraft Center at Pensacola includes a modern bag plant, a laboratory for research in conversion of kraft paper, and two pulp and paper mill units. Of the latter, No. 2 is of post



*A paper presented by Swenson before the Second Annual Pulp and Paper Conference.

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KRAFT BLACK LIQUOR EVAPORATION

Send now for this recently published 5-page paper* on kraft black liquor evaporation. It provides information on the design and operating principles of the long tube film-type evaporator as applied to the evaporation of kraft mill liquor. Included is a discussion of the causes of operating problems with evaporators as well as their auxiliary equipment. Be sure to send for this important report today!

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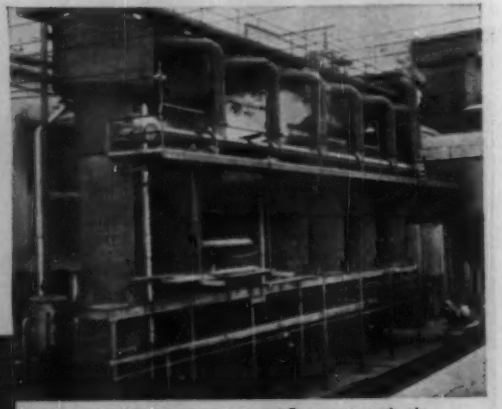
15632 Lathrop Avenue, Harvey, Illinois



Photograph illustrates a recent Swenson septuple effect evaporator in a west coast mill. Let Swenson, with more than 90% of the septuple effect evaporator installations, show you how to obtain steam economies in the range of 5.5 to 6.0 lbs. of evaporation per pound of steam.

SWENSON
Proved Engineering for the Process Industries
SINCE 1889

A Division of WHITING Corporation

The DRAPER Belt
DRAPER BROTHERS COMPANY
CANTON, MASS.

war construction and expansion, having a 192-in. trim Black-Clawson Fourdrinier machine and a 210-in. trim Bagley & Sewall Fourdrinier.

Originally the Florida Pulp & Paper Co., the No. 1 mill was built immediately preceding World War II by the late Jim Allen, a pioneer of the Southern industry who, in his last years, amalgamated his enterprise with St. Regis.

For nostalgic recollections it may be recalled that No. 2 machine was the Beloit 5-cylinder (2 cylinders have since been added) unit originally installed in a mill in New Liberia, La., in a venture to make paper from bagasse. It was transferred to Pensacola during the war by the Santa Rosa Paper Co. for the Defense Plant Corp. and operated in making board for shell containers to aid the war effort. For No. 1 mill, there was erected in 1941 a bleach plant of 60-ton capacity, which in time was worked up to delivering 75 tons of bleached pulp daily, using wood-lined piping primarily in the chlorine handling stages and common iron pipe for the rest of the installation.

New Volume Tells How To Preserve Materials

How to prevent deterioration of wood, wood products, paper, machinery, etc., is discussed at length, and with many illustrations in a new 835-page volume, *Deterioration of Materials: Causes and Preventative Techniques*, edited by Glenn A. Greathouse and Carl J. Wessen of the National Academy of Sciences, with collaborations of 24 specialists. Vannevar Bush, in a foreword, stresses its value to national defense.

There is a 50-page section on paper, dealing with slime, biological, moisture, gaseous and other problems. Another chapter deals with packaging. Other chapters give valuable information for plant maintenance. (For further info, write PULP & PAPER, 1791 Howard St., Chicago 26, Ill.)

Southland Orders More New Equipment

Expansion work at Southland Paper Mills, Inc., Lufkin, Tex., is progressing, with foundations for the paper machine being put in and commitments for equipment made. The Pusey & Jones machine will have a 212-in. by 180 ft. wire, a suction pick up, and balanced for speeds up to 2000 fpm. Paper winder will be by Cameron, capable of speeds to 5000 fpm.

General Electric will furnish a new 12,500 kw turbogenerator. Steam will come from two Babcock & Wilcox gas-fired boilers with pressurized furnace instead of induced draft. Switchgear will be by General Electric.

Improvements in the pulp mill will make volume of chemical pulp adequate. The groundwood mill will be expanded.

Expansion to three machines will increase newsprint production by 70,000 tons to a total of 210,000 tons. It is understood the increased production has been sold.

NAMED FOR ALLIS-CHALMERS

G. V. WOODY (left), appointed new Special Assistant to C. W. Schweers, Vice Pres., Director of Sales, General Machinery Div., Allis-Chalmers Mfg. Co. Mr. Woody has been with A-C since 1909, and since 1945 has been Mgr. of Processing Machinery Dept.

WILLIAM M. WALLACE (right), has succeeded to that post. Mr. Wallace has been Asst. to J. L. Singleton, Vice Pres. in charge of the General Machinery Div. Before 1951 he was Special Asst. to Mr. Woody for five years.

AFTER THE RESCUE

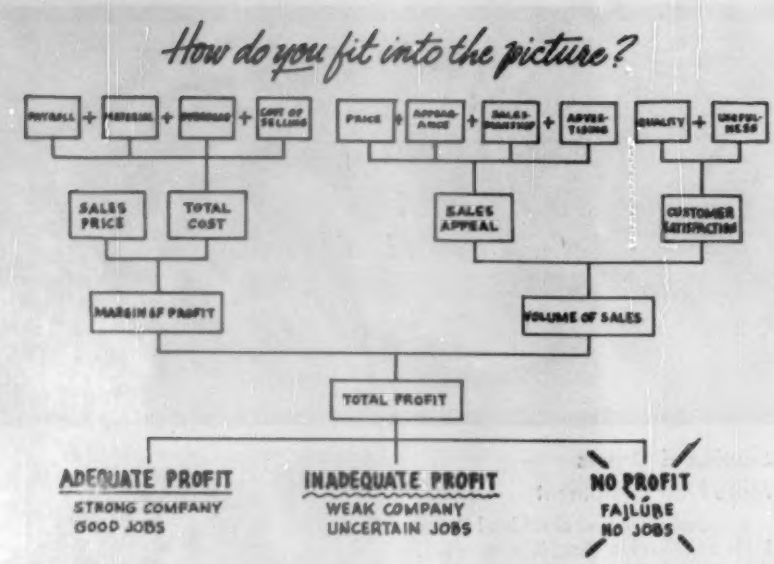
DANIEL H. HALL, Nopco technical service man, rests in Berlin, N.H., hospital after rescue from crashed plane.

Nopco Service Man Hero of Plane Crash

Daniel H. Hall, technical service man in Nopco Chemical's Paper Chemicals division, was the hero when the Northeast Airlines plane on which he was flying to make a call at Brown Co., Berlin, N.H., crashed atop Mt. Success while making an instrument approach to the Berlin airport.

Mr. Hall first went to the aid of the stewardess, knocked out on the cabin floor, and then helped put out a fire in one of the engines, using plastic trays from the plane to shovel snow on the flames. The copilot and a company dispatcher died from injuries soon after the crash, while Mr. Hall and the four other survivors spent nearly two days snowbound in the plane before being rescued by helicopter.

Mr. Hall has been with Nopco for two and a half years and has made 66 technical service trips to mills during the last year and a half. Previously he was employed by Rushmore Paper Mills and prior to that was on the staff of the Institute of Paper Chemistry.



AVERAGE EMPLOYE INFLUENCES EVERY ITEM IN CHART

With this chart, Thilmany helps its employes visualize how they influence the margin of profit. Every item in the boxes across the top of the page are influenced in some way by every employe and supervisor—they influence labor rates by work value they give, the cost of materials, of overhead and of selling by savings and efficiency, and their work also influences the price, appearance, advertising, etc.

What a Stop-Waste Campaign Means

Thilmany tells its employes the facts of life in new drive to increase profit margin and job security in Kaukauna

• E. H. Jennings, president, and Charles E. Seaborne, executive vice president, have launched a "Reduce Waste and Cut Costs" campaign at Thilmany Pulp & Paper Co. which really means business.

Every employe of the company now knows exactly what the campaign means to him, the dollars and cents meaning, job security and happiness.

First, it was launched with distribution to every employe of a 34-page, 8½ x 11 in. booklet (limited edition) which tells of Thilmany's goals, the effect of costs and efficiency on profits, who benefits and how from increased profits, and specific ways in which employes can help. It tells the story in pictures and simple, direct language.

A suggestion campaign with money awards for every adopted suggestion is part of the campaign. Every employe gets a suggestion form, and every suggestion will be acknowledged, whether it wins a prize or not. Actual value of an accepted suggestion will determine the award.

Besides this, once a month there is a lottery drawing for prizes, to stir up enthusiasm and show the company's faith in the campaign. This is for non-salaried production employes, who get a "Reduce Waste" button and a pledge. The signed pledge goes into a basket for the drawings. A complete living room suite of nine pieces is one prize. A full week's expense-paid vacation for the entire family is another. A TV-radio-phonograph combination and a home freezer are others.

When your foreman or supervisor tells you about this company-wide waste and cost reduction effort, he will explain how it can benefit every employee of Thilmany. Ask him questions so that you will clearly understand how your efforts can benefit both yourself and the company in the coming months and thus add to your future security.

E. H. Jennings

President

This booklet will guide you in explaining the program to your fellow workers. However, it is the interest and enthusiasm in reducing waste and costs that you personally pass along to the people in your department that will make this campaign a success. I am confident of your fullest cooperation.

C. E. Seaborne

Executive Vice President

SAVINGS GOAL—$360,000—Mr. Jennings has set a goal of $30,000 per month or $360,000 a year savings for the campaign. This requires just over a 5% rise in overall efficiency. The reason for the campaign, he said, is that while sales have held steady, costs have increased and profits declined.

Mr. Seaborne listed nine reasons "why we must reduce waste and costs now":

1. Competitors are more numerous and aggressive.
2. Wages are higher and materials

THILMANY BEGAN CAMPAIGN IN MIDST OF FOOTBALL SEASON

This picture taken by PULP & PAPER below Mill No. 2 where r. r. cars bring in pulpwood.

more costly.

3. More money is needed for modernization.

4. To reduce debt and secure credit.

5. To increase job security.

6. To improve future opportunities.

7. To improve return on capital invested.

8. For new product development.

9. To keep Thilmany in Kaukauna in face of rising wood and transportation costs.

The campaign objectives were first outlined to supervisors, so they were able to answer questions. The booklet says the company feels its "up-to-date, modern plant should be able to earn 2% more on its sales dollar."

There are many facts in the booklet, which every employe will understand and consider seriously. For instance, how the average hourly employe now earns $3,987, which is $2,600 more than in 1940. How his fringe benefits total $925, of which $697 are not included in the wage figure.

The booklet tells how there are four beneficiaries when the mill prospers: (1) customers, (2) employes, (3) shareholders, and (4) government.

FRANKLY NAMES COMPETITORS—It lists 41 companies which compete with Thilmany. It frankly tells how this pressure increases from larger, more diversified Southern mills, from recent mergers making companies stronger, from small converters with low overhead entering the field. "But despite all these other mills, waste is our biggest competitor," it says, and elsewhere expands on this theme: "We can't raise our prices . . . we don't want to lower wages or reduce our labor force . . . we must reduce waste and costs."

WHERE AND HOW TO SAVE—Drawings and words tell how employes can help. They say:

Don't cut paper rolls deeper than necessary.

Reduce long distance calls; write instead.

Make repairs right the first time, so they don't have to be done again.

Don't throw asphalt, waxed, wet strength or "poly" paper into regular kraft broke boxes. (One asphalt piece can cost $1,000 in machine down time, and down-grade and mark-down of paper price.)

Don't delay truck movements. (Cost is $5.65 per hr. per truck.)

Erase a mistake, don't throw away the paper.

Don't move rolls more often than necessary.

Save compressed air (an open line can cost $600 per year).

Catch bad pulp or paper early, so mistakes don't cost so much (pulp costs about 5 cents a lb., paper 7½ cents, plus 2½ cents after each converting operation).

Don't spend too much time away from the job—in smoking booths, at vending machines.

GARDNER BOARD & CARTON NAMES THESE KEY MEN

The Gardner Board & Carton Co., Middletown & Lockland, O., have named these three key appointments (l to r):

HOWARD K. ROXBOROUGH, to Staff Asst., Operations. He was Plant Mgr. of Container Corp. of America's new mill in Colombia, and was a Standard Oil Mgr. in Ecuador and Colombia 1944-50, after attending Dartmouth and graduating from Harvard Business. He was born in Toronto.

L. R. KENDALL, to Construction Engineer in Engineering Dept. He was Asst. Director of Purchasing and has been with Gardner since 1939. He is a Kentuckian, graduated from U. of Cincinnati.

ANTHONY TSENG, to Supervisor of Methods Engineering. Senior Industrial Engineer with Gardner since 1952, he was born in Shanghai, got a masters from Purdue, was in textile industry in New England.

TENNESSEE CORP. has promoted **E. H. SHELTON,** formerly sales manager of Atlanta sales office, to newly created position of general sales manager with offices in New York. Other Tennessee promotions include **L. S. KANIECKI** to manager, and **H. G. CUNNINGHAM,** asst. mgr., chemical sales, with offices in Atlanta; and **R. W. ALEXANDER** asst. gen. mgr. of Tennessee's Lockland, O., plant.

A VETERAN WITH RUST AND NEW MEMBER OF FIRM

G. M. RUST (left), Vice Pres. of The Rust Engineering Co. of Pittsburgh, has been engaged in the pulp and paper industry field for his company for 25 years and is Manager of Rust's Birmingham, Ala., office operations. He helped make arrangements for the Tappi Alkaline Pulping meeting in Birmingham last fall. JAMES A. SLATER (right), is a new Sales Engineer for the Rust organization, having been in sales and engineering for Koppers Co. since 1934. He got an m. e. degree at Carnegie Tech and did graduate work there. He resides at 1823 Greentree Rd., Pittsburgh.

Institute Comes to Rescue of Married Students

● This industry's leading graduate school, the Institute of Paper Chemistry, heading toward a record enrollment of close to 90 students in about two years, will soon be able to get its married couples and families out of crowded temporary "homes" in quonset huts.

Westbrook Steele, Institute president, proudly told PULP & PAPER that contracts have been let for 5 new brick, concrete and wood buildings—3 one-story structures and 2 two-story ones, to cost $275,000. Each will have 4 separate apartment units.

The Institute now has 47 men students, of which 22 are married and all but one of the latter has children. Of these, 15 families are in quonsets, one in a trailer and one with relatives in Neenah, Wis.

The new apartments will be in and near west of the Institute, across West Ave., Appleton, and about 650 ft. south of River St. The certainty of further growth in enrollment is expected to require 4 more of the 4-apartment units next year. Asten Hill House and Kress House will continue to be used, as far as possible for single men.

Only the Institute, Princeton and U. of Cincinnati require graduate students to live in dormitories.

We are Sorry

In our November issue we inadvertently promoted William A. Zonner to president, when he is actually vice president and general manager of Valentine Pulp & Paper Co., New Orleans, La.

Is One of Savannah's First Citizens*

LOTS OF SOUTHERN pulp and paper makers know John D. Robinson. But even his neighbor folks in this industry do not know as much about "J. D." as his immediate neighbors on Savannah's Bay Street and Bull Street.

It may surprise some folks in this industry to know that John D. Robinson is one of Savannah's most colorful and best loved citizens. A PULP & PAPER editor found this out just walking down Savannah streets with "J. D." The editor got to wondering whether Mr. Eisenhower had dropped into town from his neighboring golf home, but he found the Savannah people were smiling and turning and waving not at Eisenhower—but at the white-haired gentleman, in slouch hat and dapper clothes and cane, walking right beside him.

Here's a typical anecdote, John may want to sue us for publishing this because he didn't tell it—he never would. A friend told it confidentially.

During the Depression Bank Holiday, which some of our readers ought to remember rather vividly, John showed his foresight by loading his store up with loaves of bread. People had no money, but they could just come to his place of business to get bread, which was a lot more useful. The poor were accustomed to coming there, as he always kept a receptacle full of coins for them in the doorway —where they could help themselves. When the banks closed, they found bread instead.

"J. D. R." is all that the big sign says, or needs to say, over the business establishment at 13-17 Bay Street, with giant valves lined up in front of it on the sidewalk and other supplies for paper mills in the windows.

Mr. Robinson and his company supply many pulp and paper mills on the Southeast seacoast. He represents Heppenstall, SKF, Combustion Engineering specialties and other lines.

John divides up coverage of his extensive East Coast territory with his bachelor brother, Will. John's wife, Helen, is very much a personality in the business, too. She is known in the industry almost as well as her husband.

**The strange mark you see in the heading of this article is the signature of one John D. Robinson—J.D.R.—good for chits, checks and what-have-you.*

Anyone who goes to Savannah usually finds time to look for an historic house or two. Well, the Robinson family owns one of the most famous old houses in Savannah.

It is a three-story narrow old house, but well preserved, at 110 East Oglethorpe Avenue.

The first legislature of Georgia met in this house in 1783.

George Washington made it his military headquarters in May of 1791.

And—don't sell this one short!—John D. Robinson was born in this house back in the last century—

Looking Over The Orders—
A nice part of the Savannah business is JOHN R. ROBINSON (left). His younger brother and associate is WILL ROBINSON (right).

Brother Bill lives here and a sister keeps it in good shape. Other Robinsons are often here. An antique-hunter could have a field day in the house—but there is nothing for sale.

The Robinsons have owned it about 100 years. J. D. R.'s grandfather, who was also J. D. R., bought it. The present J. D. R. is the third with those initials which are a kind of magic in Savannah. He and Helen live at Savannah Beach, toward the ocean from town.

The present John Robinson attended the University of Georgia and took engineering at C.C.N.Y. in New York as a World War I army engineer. He has been in business in Savannah since 1919.

Speaking of the magic of those initials, all he has to do is write them in a fraction-second sweep of the hand, and the remarkable mark he makes is accepted anywhere in Savannah on chits, checks or what-have-you.

DIONG DIEK UONG, Vice Pres. in Charge of Engineering and Research, Fitchburg Paper Co.

Salute to "Dick" Uong Who Rose to Top

One of this industry's best known executives is a native of China. He has been a distinguished leader in scientific advancement of papermaking and especially in diversifying paper uses.

With that much said, many readers will know that this article is about Diong Diek Uong (pronounced Wong). He is vice president in charge of engineering and research at Fitchburg Paper Co., Fitchburg, Mass., and he is the president of a subsidiary, Fitchburg Paper Development Corp. He rose to those positions after serving as mill manager and chief chemist.

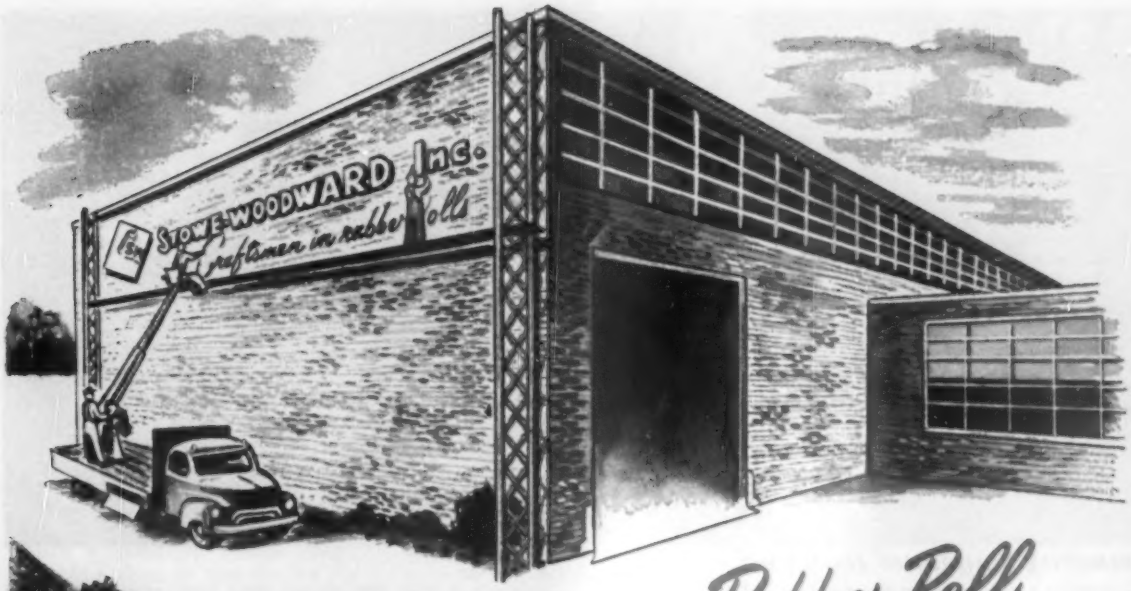
"Dick" Uong has served 28 years with Fitchburg—ever since his graduation from the University of Maine in 1926, where he majored in pulp and paper technology.

Now he is one of the three vice presidents of the company, serving under Pres. George R. Wallace. The others are Carl M. Fellows and John W. O'Conner, who is the sales v. p. Besides this, Mr. Uong, who has made many contributions to the quest for better paper products, continues work in this field as president of the development company.

Noble & Wood Machine Co.'s *Agitator* recently paid tribute to Mr. Uong by naming him as its "Papermaker of the Month." It lauded his work in improving paper quality and diversity of uses.

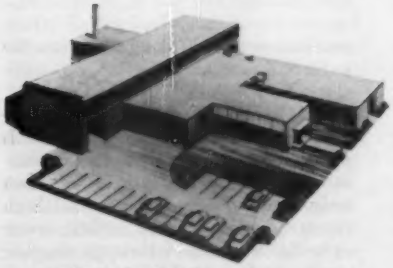
He was born in Foochow, southeastern China seaport, now part of Red China. Its 1950 population was 390,000, about the same as Columbus, O. Mr. Uong received his primary and secondary education in China and the Philippines. When he came to America, he worked while continuing his education at Maine. In this period he worked for Great Northern Paper, Penobscot Chemical Fibre and Nekonegan Pulp Co.

Mr. Uong went back to China on a business mission for the U.S. Government in the mid-forties.



Signs of Rubber Roll PROGRESS

in GRIFFIN, GEORGIA



Architect's drawing of Stowe-Woodward's new Griffin, Georgia plant scheduled for operation January 1955.

There's more to the sign above than meets the eye . . . for this is a sign of progress . . . progress that means better service to the great Paper and Textile Industries of the South.

Griffin, Georgia, in the heart of the industrial South is the home of Stowe-Woodward's new plant, to be in operation in January 1955.

The most modern roll covering plant in the world, it is designed specifically for the unusual requirements of Rubber Roll manufacture, and will be equipped to handle the largest rolls in use today and tomorrow.

"RUBBER ROLLS WITH A REPUTATION"
by

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN — NEWTON 64, MASSACHUSETTS — GRIFFIN, GEORGIA

REMOTELY CONTROLLED FROM HERE

Practically every operation in new Bleach Plant at Gaspesia Sulphite Co. is controlled from this central panel. Incoming power is at 6600 volts through three banks of air-cooled 1000 kva Canadian Westinghouse transformers.

For Market Pulp, a New Bleach Plant

Gaspesia Sulphite Co.'s own engineers select equipment for stepping up production and improving pulp quality

• In planning and execution of Gaspesia Sulphite Co.'s new $3,500,000 bleach plant at Chandler, Que., engineers kept two goals uppermost in their deliberations:

1. To build a plant that would step up production.

2. To improve pulp quality by increasing efficiency in the processing.

The mill's products are exclusively quality sulfite pulp grades, for market and for affiliated Anglo-Canadian operations. Its capacity is over 600 tons.

Machinery was chosen in every case to do its primary job thoroughly and, where possible, allow for conversion to higher capacity when required. Floor space was provided for later additions.

The Chandler mill has five 16-ton digesters, a chemical hot acid system, high and low pressure accumulators, rotary sulfur burners and a 3-tower absorption system. The stock passes through four Jonsson knotters, is refined in two Curlators and screened by Cowan rotary screens supplemented by Bauer Cleaners (formerly called Centri-Cleaners). The drying machine is equipped with an Oliver vacuum sheet former, two Kamyr presses, and an Emerson cylinder dryer. A Lamb-Grays Harbor cutter and layboy, plus a Baldwin baling press, ready pulp in sheet form.

The bleach plant is located near the digester house, in such a way that the pulp formerly pumped directly from screen room to drying room can be detoured out of the continuous bleach plant back into the pulp mill.

E. M. LITTLE (left) is President of Gaspesia Sulphite, as he also is of its affiliates, Anglo-Canadian and Anglo-Newfoundland.

R. J. CHAMBERS (right), Asst. Chief Engineer of Anglo-Canadian Pulp & Paper Mills, who designed and directed construction of the new Gaspesia sulfite bleach plant.

BLEACHING FLOW DESCRIBED— From the blending chest, stock is metered by a Fischer & Porter rotameter to an upward flow chlorination tower—through the washer and high density downward flow caustic tower —then it is pumped through another washer and on to the first and second high density hypochlorite stages. Storage towers used are duplicates of the high density bleach towers for possible conversion to additional bleach stages. The washers were supplied by Sherbrooke Machineries and are set in tile vats built by Canadian Stebbins.

The Kamyr-type low density upward flow tower is 14 ft. 6 in. in diameter by 100 ft. high, while all of the Kamyr-type high density towers are 17 ft. in diameter by 67 ft. high. The Impco washers are of stainless steel construction and are 11 ft. 6 in. in diameter, by 15 ft. long. They use variable speed electric drive.

A system to minimize handling of raw materials and do it cleanly and efficiently was another goal. The unloading of lime from two kinds of

BLEACH PLANT IS NEW ADDITION AT THIS MILL

Digester House and Acid Plant (at left) are familiar sights at Gaspesia Sulphite Co. mill at Chandler, Que., but now a new Bleach Plant (at right) has been added, as described in this article.

cars, the conventional type box car, and the hopper-type car, is done by a Dracco vacuum-type air conveying system supplied by Dracco Corp., using bag filters to trap dust in the outgoing air and using different types of inlets. One of these is a vacuum cleaner nozzle which can be used in the ordinary box car, while the other is attached to a pan on skids which is used under the hopper, or in the case of bagged material inside the box car door. Freight cars are unloaded inside the plant to provide proper temperature and air conditions.

The bleach liquor preparation system is an Impco continuous system. Lime slurry is fed through an automatic feeder and slaker under control of a proportioner. The slurry is drawn from the slaker by a variable-speed Moyno pump. The system is controlled from a separate panel board. Caustic is stored at 50% strength in three storage tanks, in a specially heated and enclosed room.

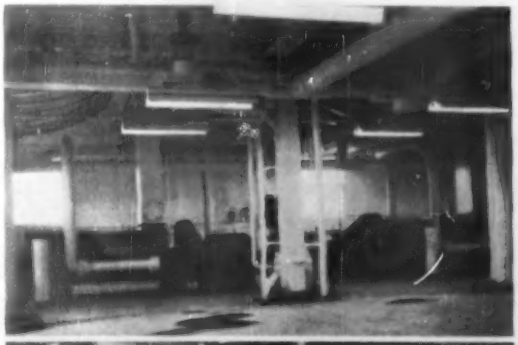
Almost every operation in the plant is controlled from a central panel. Incoming power is at 6600 volts through three banks of air-cooled 1000 kva Canadian Westinghouse transformers. The control room also houses generator sets for variable speed drives, and a group of small transformers for various control purposes. This room is isolated by tight-closing fire doors which helps protect equipment from chlorine in the air.

Dominion Bridge Co. supplied and erected steelwork. Canadian Stebbins did the tile work. Dominion Rubber and B. F. Goodrich divided rubber lined pipe work. Dominion Welding Engineering and Shawinigan shared fabricated steel piping.

Crane furnished steam piping and valves. Stock pumps and agitators were from Paper Machinery Ltd. Other pumps were from Canada Pumps, Northern Foundry and E. Long.

The bleach plant was designed and built under the supervision of R. J. Chambers, assistant chief engineer of Anglo-Canadian Pulp and Paper Mills, with Alex Glen, plant engineer of Gaspesia, as assistant on the project.

John W. Wing as general manager of the firm was closely involved in the initial planning stages, as was J. K. McConomy, mill manager, and C. R. Tittemore, superintendent of the plant.

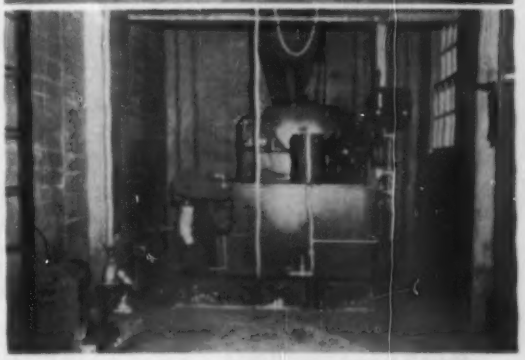


MIXES BLEACH STOCK

Stock steam mixers at Gaspesia Sulphite's new bleach plant were supplied by Paper Machinery Ltd.

THREE STAGES HERE

Some of the washers in new bleach plant. These were built by Sherbrooke Machineries (Impco), with tile work by Canadian Stebbins.



PREPARING BLEACH LIQUOR

Lime slurry is drawn from Omega lime slaker by variable-speed Robbins & Myers Moyno pump. Dracco vacuum type system conveys lime from box cars to bleach plant.

Hundreds of the new

TIDLAND

pneumatic wind & unwind

SHAFTS

are making money for 127 mills throughout the U.S. and Canada . . .

Custom-built in any length or diameter. Finest workmanship.

TIDLAND SHAFTS come in two types: (A) the leaf-type collapsible shaft for rewind, and (B) the lug-type for mill rolls. They are custom-built to meet your particular needs, using highest quality materials.

Because of their rigid construction and the tight hold they exert along the entire roll, Tidland Shafts eliminate deflections and resulting damage to cores and paper, and make higher maintained operating speeds possible.

It is not uncommon for a Tidland Shaft to pay for itself in a few weeks from this saving in time and paper. Simply designed, these shafts cost next to nothing to maintain.

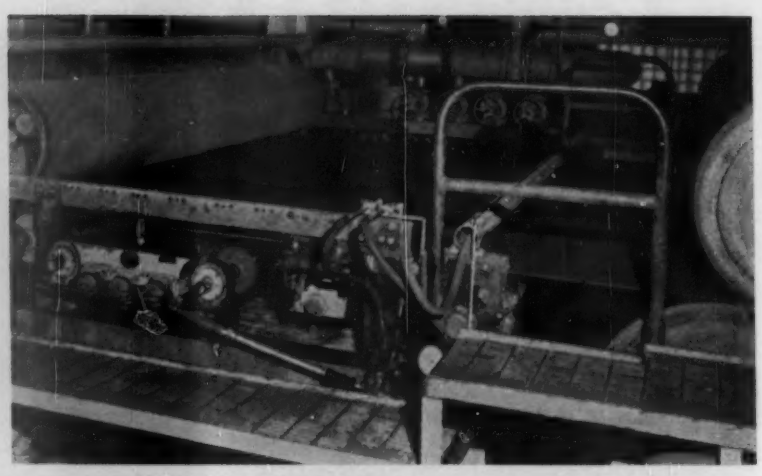
Write for list of mills in your locality using Tidland Shafts.

TIDLAND SHAFTS

Manufactured by Tidland Machine Co.

CAMAS, WASHINGTON

Represented in New England by ORTON CORP., Fitchburg, Mass.



EVEN HIGHER SPEEDS ANTICIPATED

This Rotabelt unit is on No. 6 Fourdrinier machine at Longview Fibre Co. in Longview, Wash., making kraft liner and corrugating.

How Rotabelt Added to Wire Life

Case history from a leading kraft mill also reveals successful speedup of machine to 1150 fpm

By WILLIAM W. CLARKE

● A Rotabelt suction unit was installed on No. 6 paper machine at Longview Fibre Co., Longview, Wash., last year with the primary idea of increasing wire life. This machine operates on Fourdrinier natural kraft liner and corrugating grades with normal operating speeds of from 800 to 1050 fpm. Speeds as high as 1150 fpm have been run with the Rotabelt on this machine. So far as is known, speed of 1150 ft. makes this the fastest operating Rotabelt anywhere in the world.

Originally, the last three of 10 suction boxes in the Fourdrinier part of the paper machine were replaced by the Rotabelt unit. Due to the heavy weights of board run and the great amount of water to be removed, it was subsequently found necessary to move the Rotabelt back one box and install a flat box immediately after the unit, so now there are six flat boxes ahead and one following the unit. A secondary head box is used which is usually placed directly over the third flat box and approximately 15% of the total weight of the sheet is added at this point.

The reason for placing one flat box after the Rotabelt unit was because the first one or two boxes of the three in the unit were running as wet boxes and while the sheet over the third box looked dry, the water had not been removed from the bottom of the sheet and wire. After passing the Rotabelt, the sheet would again become wet. With the present arrangement, the last flat box removes this water without placing undue strain or wear on the wire.

W. W. CLARKE—"As far as is known, this is fastest operating Rotabelt in the world."

A survey of 10 wires before and 11 after the Rotabelt installation show the average loss of caliper per day of the wires was reduced 42% while wire life increased from an average of 8.09 to 11.53 days as shown in the accompanying table. Almost all wires are taken off of the machine because of damage, but with a decrease in wear the results of wire damage are minimized. Due to less suction box wear on the wire, patches placed on the wires run longer with the Rotabelt than formerly.

Power requirements for driving the couch, with the different weights run, vary between 40% and 50% reduction.

The original rubber belt is still running but shows noticeable wear after many months of operation. Therefore belt life has yet to be determined but

Mr. Clarke is Paper Mill Superintendent, Longview Fibre Co., Longview, Wash.

indications are that it can operate for some time, possibly as long as a year with reconditioning.

The Rotabelt unit was adjusted for tracking of the rubber belt when it was first installed and has not been touched since. There was no trouble whatever with the tracking at the higher speeds, in fact, it is anticipated to operate at higher speeds in the near future and with no trouble from this source.

Longview Fibre Co. is studying the possibilities of installing another unit just ahead of the present one and directly after the secondary headbox.

HERE'S CASE HISTORY AT LONGVIEW FIBRE CO.

Before Rotabelt Installation

Wire No.	Caliper on	Caliper off	Wear	Days	Wear/day x 10⁴
1	0.026	0.021	.005	7.6	6.58
2	0.026	0.0218	.0042	11.3	3.72
3	0.0275	0.0235	.004	9.4	4.25
4	0.026	0.024	.002	7.1	2.82
5	0.027	0.0242	.0028	5.1	5.5
6	0.027	0.0232	.0038	5.6	6.8
7	0.027	0.0228	.0042	8.1	5.2
8	0.0275	0.022	.0055	7.5	7.35
9	0.0275	0.022	.0055	11.6	4.75
10	0.0275	0.022	.0055	8.6	6.4
			Average	8.09	5.34

After Rotabelt Installation

Wire No.	Caliper on	Caliper off	Wear	Days	Wear/day x 10⁴
1	0.027	0.024	.003	10.4	2.88
2	0.0275	0.023	.0045	10.5	4.28
3	0.0265	0.021	.0055	15.2	3.62
4	0.0272	0.0217	.0055	13.1	4.2
5	0.0275	0.0222	.0053	13.6	3.89
6	0.027	0.0227	.0043	10.0	4.3
7	0.025	0.0202	.0048	13.0	3.7
8	0.028	0.0232	.0048	13.6	3.53
9	0.0265	0.023	.0035	9.4	3.63
10	0.027	0.0245	.0025	7.4	3.38
11	0.0265	0.020	.0065	10.6	6.12
			Average	11.53	3.96

NEW WASTE WOOD CHIPPER

A waste wood chipper especially designed for sawmills who wish to make chips economically is offered in three disc sizes: 36", 42" and 48". Under normal operation these chippers can produce up to 15, 18 and 22 cords per hour respectively with low horsepower.

Tests made on southern pine slabs indicate that the chips produced by these machines may not need screening. The economy factor from this point alone is considerable. Most sawmills can pick enough clean wood off their waste conveyor to make a chipper installation well worth while, even without barking.

These chippers are ruggedly constructed and are designed especially for easy installation and low maintenance. These chippers are produced by the Hansel Engineering Company, 1500 Westlake Avenue North, Seattle 9, Washington. Inquiries in the South may be made to Owen-Richards Company, 1009 2nd Avenue North, Birmingham 4, Alabama.

Comparative tests made with the Hansel chipper and other chippers on Southern pine slabs indicate that the Hansel chipper makes a superior paper with greater strength. As a result of these tests several of these chippers are being ordered by a large kraft mill in the South.

(ADVERTISEMENT)

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WAITING ROOM No. 2 OF MIGRATORY PEDDLERS INITIATES "ACE" McCORRY AS HONORARY MEMBER

These are scenes from initiation at Fall Coast Supts. Convention in Seattle on Dec. 4 of A. C. (ACE) McCORRY, Pulp Mill Supt., St. Regis, Tacoma, Wash., and 5th Vice Pres. of National Supts., into the Migratory Peddlers as an honorary brother. The Wake-'Em-Up Breakfast show was staged with 5 other honorary members recruited as major actors—ERIK EKHOLM, V.P. of Puget Pulp; WM. CLARKE, Paper Supt., Longview Fibre; GERALD ALCORN, Construction Eng., Weyerhaeuser Pulp Div., and GEORGE McGREGOR, Supt., Columbia River P&P Mills. All were dressed as Santa Clauses and handed out screwball presents, that got plenty of laughs, to various peddlers and—finally—to their new brother honorary, Mr. McCorry. While all this was going on, Mr. Alcorn got inside a miniature evaporator. At the end of the show, a midget, dressed like the brother who went in, came popping out of the evap, as blasts were firing off from its exhausts, and he did a handspring. There were frequent interruptions, also, by a laboratory technician with a steaming test-tube, yelling for help from a missing honorary member—RUSSELL LeROUX, mgr., Weyerhaeuser Pulp Div., Everett, Mr. LeRoux never did appear, for the very good reason that he was on a vacation.

In the pictures:

(1) Mr. McGREGOR handing a gun with an adding machine attached to ED GARRISON, so he can more easily figure his hunting trips on his expense account.
(2) CHES PEDERSON interrupts with overflowing test-tube, calling for MR. LeROUX.
(3) Here comes the midget out of the evaporator—big GERRY ALCORN was the gentleman who went in. HALVAR LUNDBERG, Pres. of W.R. 2, is in bowler hat. W.R. 2 is the Seattle Chapter of the fun organization.
(4) Officers of W.R. No. 2 congratulate Mr. McCORRY after he survived the ordeal (l to r):JACK SUTHERLAND, Mr. McCORRY, ALBERT S. QUINN and HALVAR LUNDBERG. Latter is pres. and Mr. Quinn is v.p. of Peddlers.
(5) Also fellow honoraries congratulate Mr. McCorry—(l to r): MESSRS. McGREGOR, McCORRY, EKHOLM and CLARKE. MR. ALCORN was momentarily not present for the picture.

New IP Machine in South

Production of Board has started at International Paper Co.'s Springhill, La., mill from a cylinder machine brought down from another operation. About 60 tons per day is added to that big mill's output.

GOOD EXECUTIVES

Continued from page 57

developed for 22 men between 30 and 40 from middle-management level for replacement timber. What about that program?

Mr. McSweeney: Primarily due to the war, most men in top management positions in this industry, as in others, can be likened to the song "They're Either Too Young or Too Old." The end of World War II saw a dramatic rise in the interest in executive development and training, but this industry has been slower than any other major industry in recognizing the problem and getting started on developing a solution. My observations are that this industry is now beginning to recognize this problem, and many companies are discussing ways and means to set up executive training programs of their own, in addition to a few companies that have already started.

Question: This industry is extremely conscious of conservation when it comes to forestry and utilization of by-products. What would you think about a conservation program for executives?

Mr. McSweeney: In my opinion this is an absolute must. Most of our top executives are terribly over-burdened, and unless steps are taken immediately to relieve them of the load they are now carrying, we're going to have more heart attacks and premature crippling of men who should have many more years of devoted service to the good of the industry.

Railroad Car Spotter

One man can easily spot six loaded r.r. cars at one time, or handle scores of tasks involving horizontal haulage (in either direction or around corners) with aid of a Link-Belt car spotter. Spotters consist of a vertical capstan, helical and worm gear drive, heavy housing, and integral motor. By wrapping two or three turns of rope around the capstan, one man has up to 10,000-lb. starting rope pull at his disposal with the 10-hp model. Larger loads can be handled by car pullers, with horizontal drums and up to 30 hp motors. Write for Book 2092, Link-Belt Co., 307 N. Michigan Ave., Chicago.

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A complete range of non-dusting, fast to light dyestuffs, the FASTUSOLS generally produce shades of the highest degree of non-two-sidedness and therefore are of particular interest for coloring all high-grade papers, sulphite bond, ledger and cover papers. All these brands may be added dry to the beaters without showing color specks.

In addition to these valuable properties, most of the dyes in this class are readily bleachable with chlorine for simplified reuse of broke, while some which are not bleachable are of interest for record papers such as ledger, where fastness to ink-eradicator is desirable.

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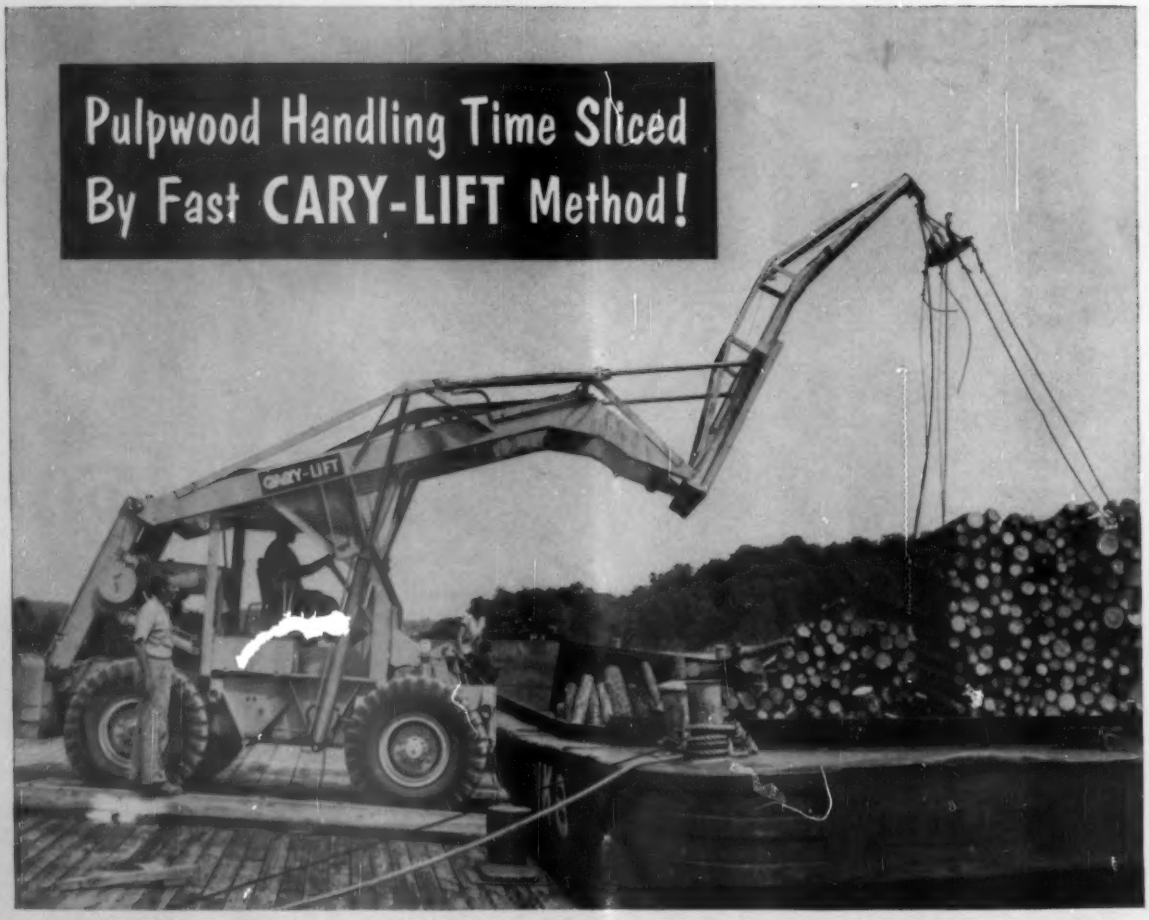

Loading 100 cords every 8 hours 600 feet from ground storage —— that's what *each* of 3 Pettibone Cary-Lifts does for Bowaters Southern Paper Corporation in Soddy, Tenn. Other Cary-Lift models unload and load railroad cars and trucks and deck in minutes—on rough or smooth terrain, in mud or snow! Moves rail cars, too. Interchangeable fork (with or without baler) plus snow and other buckets add to versatility. Ask about the money-saving advantages for your operation.

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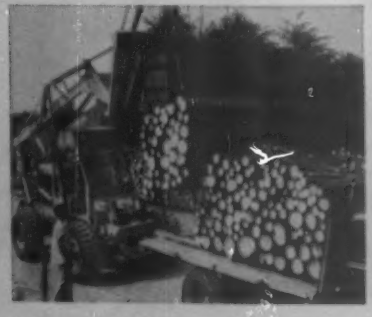
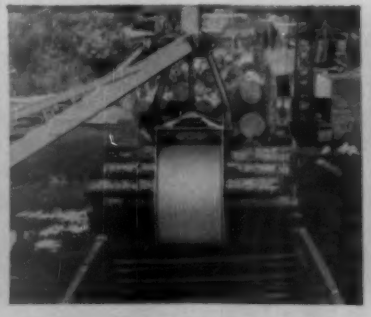
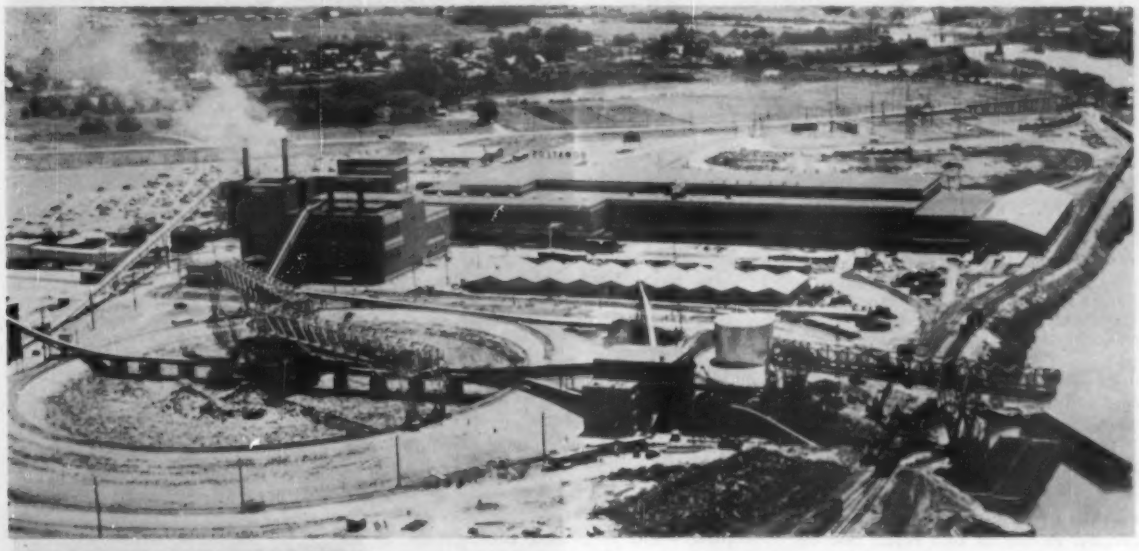
LOADING CARS AND TRUCKS Loads and unloads lengthwise and across in a jiffy. Eliminates labor hazards.



SWIVEL CLAM MODEL grabs big loads. Carries and positions quickly and gently anywhere on 360° arc.



FORK WITH BALER picks from or places anywhere in pile. Reaches high. 4 wheel steer handles tight spots.



NEW SCHEME STOPS WOOD DECAY
This back view of Bowaters new Tennessee mill reveals the big pond where 30,000 cords of wood can be stored under water to eliminate decay. Much wood comes by barges from farms and pine plantations along Tennessee River and its tributaries.

Bowater Mill Gets Wood from Several States

Comes by truck, rail and water routes for underwater storage in massive log pond, which holds 30,000 cords

• The new Bowaters Southern Paper Corp. Tennessee mills (see PULP & PAPER's feature story elsewhere in this issue) gets its wood from large forests and small woodlots, both in Tennessee and in adjoining states. The company woods department, headed by Manager R. R. Edgar (picture in preceding story), has long been assisting farmers and lot-owners, with films and talks and pamphlets. Much neglected wood-growing area is being brought into use.

Truck, rail and water routes bring in the wood. A fleet of Bowater barges daily pick up wood on banks of the Tennessee River and tributaries. The Hiwassee, where the mill is located, is a tributary. The mill is 15 miles up-river from the confluence with the Tennessee. Pictures with this story shows how a Pettibone-Mulliken Cary-Lift does a high speed job of handling barge wood for Bowaters.

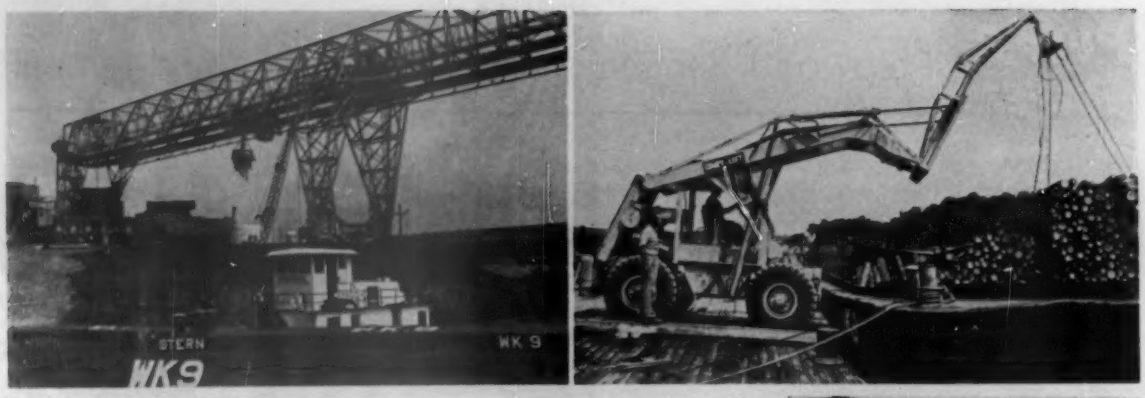
Bowaters is paying out $3,500,000 annually to landowners and farmers in several states. The new kraft pulp, groundwood and newsprint mills require 250,000 cords (32,000,000 cu. ft.) of wood annually for capacity operation. The massive log pond, as big as a football field, is a novel sight at the mill. For preserving wood from deterioration, it is stored under water after being barked. Waterlogged pine slowly sinks. Massive gantry cranes, cable conveyors, big grapples, make up the mechanism to retrieve the wood. The pond can store 30,000 cords (3 million cu. ft.), enough for 6 weeks. It may set standards for future mills.

TVA-created navigation on the upper Tennessee makes possible not only delivery of pulpwood. Chips also come by barge to Bowaters, with initial movement from Clancy Forest Products Co., Decatur, Ala.

The pulpwood is lifted from barges by a Link Belt Co. gantry crane using a Wellman grapple. Pulpwood rack cars on the spur beneath the gantry may be cleared into a concrete pit by a Lorain "rake" or unloaded with a Thew-Lorain TL 820J crawler type crane using an Owen orange peel type grapple. The gantry may also be used directly on rack cars using a grapple. A Lorain with wire rope slings handles trucks. A slight introduced grade permits shifting of rail cars. Unloading capacity was engineered for 906 cords per day, but over 1200 cords have been handled. The greatest flexibility is provided in pulpwood unloading.

Pulpwood handled by the Lorain cranes is dropped onto a very heavy Link-Belt conveyor table discharging to a flat ring turntable 7-ft. wide and of 60 ft. turning diameter. The Link-Belt gantry discharges its load to another feeder set in the center of the ring and feeding to it.

Operators using push button control of turning blades set to project at will into the turntable load select pulpwood for each of three 12 by 45 ft. Fibre-Making Processes barking drums. Of these, one at right serves the groundwood mill, on the extreme left the pulp mill, and the center unit



WOOD COMES BY WATER

Barges bring wood to new Bowater mill in Tennessee. At left is close-up view of giant LINK-BELT gantry crane at work unloading barge. At right, PETTIBONE-MULLIKEN Cary-Lift removes barged wood that has come from Tennessee River and tributary points.

used either way. Straight, knot free, quality pulpwood of fair size is selected for grinding.

Barked pulpwood is stored in the circular concrete-lined pond of 500 ft. diameter and 40 ft. depth, with estimated capacity of 30,000 cords. It is divided in use to two sides, one for groundwood, the other for the kraft mill. Storage in water is designed to maintain green freshness in the wood, and to obviate any possible weather interference in mild-climate Tennessee.

Conveyance to the pond is by either of two cable units, one for each side. At the pond center a turntable in a 40 ft. diameter design receives the wood. From this the wood is directed by mechanically controlled (push button) plates to a stacking conveyor for distribution through its semi-circular field. As needed, the pulpwood is recovered by a duplicate pivoted gantry crane with hoist, trolley and grapple. Placed on a chute in the pond center edifice it is fed to a cable conveyor back to the chipper in the wood house. The immersion and conveyor shower results in wood significantly free of dirt and/or grit, contributing to longevity of chipper knife line.

Chipping is with a single Carthage unit, driven by a 400 hp motor, and mounted on a vibration absorbing platform as in the case of turbo generators. Screening is with Orville-Simpson Rotex equipment with uniformity provided by star feeders. Oversize chips are reworked and returned to chip belt to silo.

Accepted chips are belt conveyed across the pond to three 20 ft. i.d. by 99 ft. Stebbins reinforced tile silos from which they are fed as needed by Jeffrey Mfg. Co. 17-foot table feeders. Automatic scaling of chips as used is effected with Merrick Weightometer equipment.

Drawn from storage pond, barked pulpwood is delivered to a 40 ft. diameter turntable but on different sides. Supply for the groundwood mill is subjected to its second inspection for suitability and if rejected is passed to the kraft mill via the chipper. Accepted wood is passed through the butting saw and fed to a 1900 ft. long flume skirting the pond and terminating in the mill. Within the groundwood mill this flume is lined with Stebbins Semplate. Conveyors carry this wood to the battery of grinders and from there on is the story of the mill, told elsewhere in this issue.

IN PULPWOOD WORLD

CLARENCE RICHEN, Crown Z chief forester, and **W. D. HAGENSTEIN,** chief forester of Industrial Forestry Assn., have been appointed secretary and chairman, respectively, of private forestry division, Society of American Foresters. These men have headquarters at Portland, Ore. where SAF will hold its annual meeting in 1956.

HAROLD R. WILBUR, formerly logging supt. of Crown Zellerbach Corp., Cathlamet, Wash., transferred to Neah Bay, Wash., division replacing **ALBERT S. KING** who is on leave as result of automobile accident. **JAMES D. PRATER,** formerly woods foreman, replaces Mr. Wilbur as logging superintendent at Cathlamet.

R. G. MAC FARLANE, manager, lumber and logging dept., Fraser Companies, Ltd., Edmundston, N.B., has appointed **J. COLIN (CHICK) DAVIDSON** to assistant supt., pulpwood div., and **ROBERT I. CLARK** to divisional forester. Just two month ago, a PULP & PAPER editor was present at the wedding of Mr. Davidson to the former Miss Sally Stevens of Edmundston.

WOODYARD SCENES

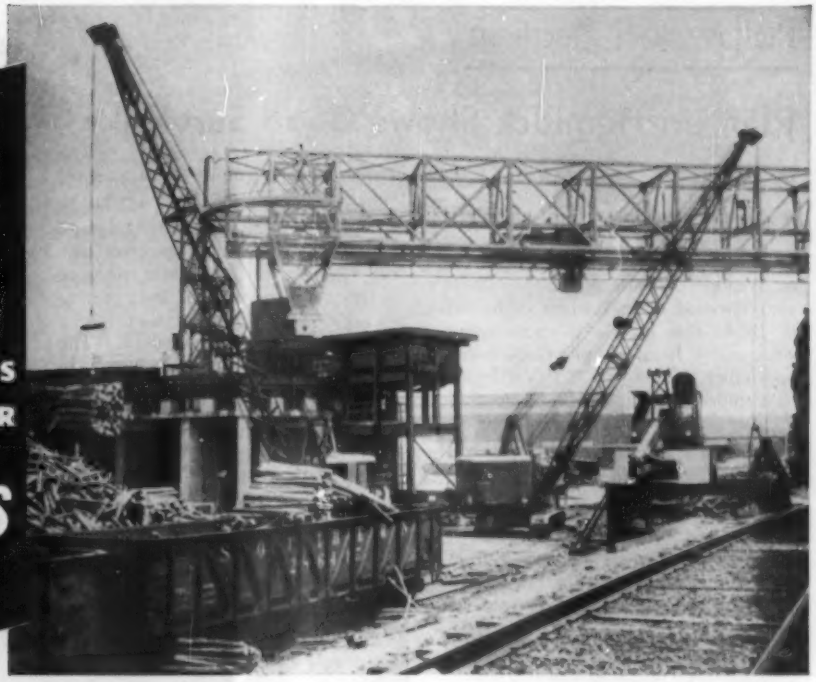
At top, LORAIN TL-820J crawler crane unloads railroad cars, delivering to platform conveyor. Second, LORAIN rake pulls wood from r.r. cars into pit in speedy operation. Bottom, FIBRE MAKING PROCESSES barking drums are at right; log flume at center. Wood is barked before going into water storage.

HERE'S HOW

BOWATERS SOUTHERN

GOT THEIR MONEY'S WORTH FROM THEIR

4 LORAINS

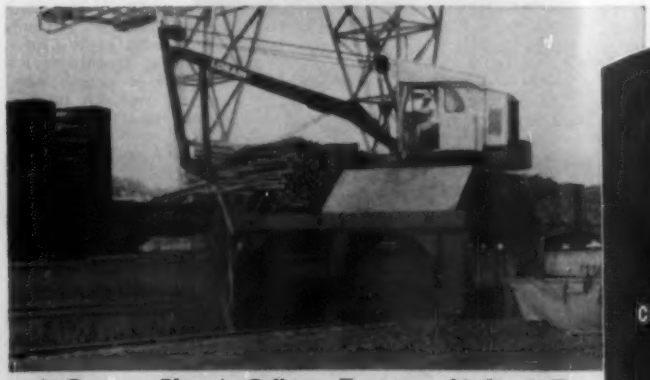


When Bowaters Southern Paper Corporation built their new $60,000,000 mill at Calhoun, Tenn., they bought 4 Lorains to help in the construction. When the mill started operations, two of the Lorains were put to work with grapples and slings to handle pulpwood. One other stayed at the mill for general mill maintenance and construction service. Then, another Lorain — a "TL" Rake, especially designed to unload rack cars was added.

The selection of Bowaters' 4 new Lorains was based on their own experience, too. Bowaters' Canadian operations have used some 17 Lorains for many years. Their labor-saving, cost-cutting advantages were well-known to Bowaters engineers.

The adaptability of Lorains — in all phases of the pulp and paper industry — is what makes them so popular. You'll find Lorains working in mills, in collection yards, in the woods — mounted on crawlers or rubber tires — using many different front ends and attachments to speed up handling, maintenance and construction operations. They are easy to convert from one use to another. They are long-lived, easy to operate.

It will pay you to check with your nearest Thew-Lorain distributor to get the *complete* Thew-Lorain story — to learn all about the wide selection available to fit your needs for lower-cost pulpwood handling. Why not do it now?



At Bowaters Plant in Calhoun, Tennessee, this Lorain-TL Rake is mounted on a gantry which spans a wood pit and which is propelled along tracks on either side of the pit by the same electric motor that powers the Lorain. As strings of rack cars come in, the Rake simply swings to drop its 5 ft. x 3 ft. "board" behind the stacked logs; then with a pull toward the machine, it easily "rakes" the logs off the car into the pit. An average unloading time of 6 minutes per car releases the rack cars promptly for reuse.

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Planted Hemlock Shows Good Survival

By GEORGE R. STAEBLER

● Nursery-grown western hemlock planted in heavy brush and bracken on the Hemlock Experimental Forest in Western Washington had a first-year survival of 90% when examined in 1954. This success is encouraging since most hemlock plantings made previously in the Pacific Northwest have failed. Earlier attempts were all small-scale trials in which it was necessary to use wildling stock pulled from naturally seeded areas, because nursery-grown trees were not available.

The experimental forest in which the test was made is 13 miles north of Grays Harbor and is a cooperative undertaking of St. Regis Paper Co. and the Pacific Northwest Forest and Range Experiment Station. The difficult site planted is typical of large areas on the western side of the Olympic Peninsula.

The planting is part of an experiment to test ability of native conifer species to survive and grow under difficult site conditions. Trees were planted Feb. 3, 1953, by a contract crew instructed to plant the seedlings by the same methods used for Douglas fir. No scalping was done and no special effort made to do a better-than-average job. The quality of planting was, however, entirely satisfactory. Seedlings were 2-0 stock.

On two small areas, 2500 trees were planted. One was in heavy brush and bracken, unburned for many years. The other had been burned in 1951, and brush and bracken were not yet fully re-established. In each planting 100 staked seedlings showed a survival of 92% on the unburned area and 88% on the burned. Average height of live trees was 5.2 in., and thrift was excellent.

Although rabbit damage was severe in adjacent plantings of Douglas-fir, now 4 years old, the hemlock was not heavily attacked. Damage to hemlock was not serious since only small twigs were clipped—not whole trees.

Practices required to grow hemlock in the nursery have not been fully developed, mostly because hemlock as a plantation species has not been in much demand. However, the British Columbia Forest Service is working to overcome obstacles to successful nursery production. Seedlings used in the experimental plantings were part of their limited output.

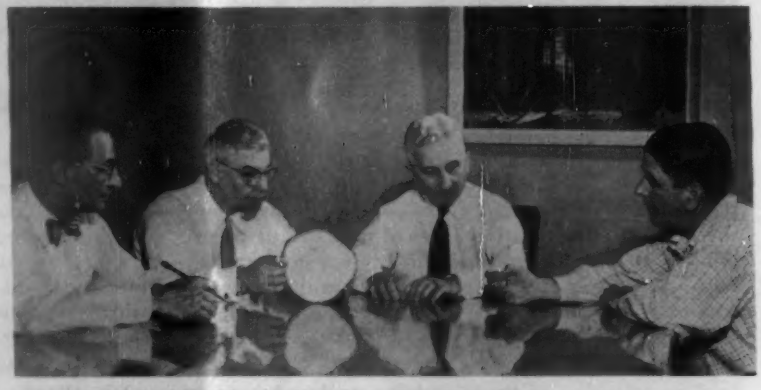
Results of this experiment, though preliminary, are encouraging for several reasons. An important one, of course, is the indication that plantations can be established successfully with nursery-grown hemlock. The problems in growing hemlock in nurseries and establishing it in plantations need solution, particularly in a state that leads the nation in pulp production. Washington produced over 2 million tons of pulp in 1951, mostly from hemlock.

Nonstocked areas have been planted almost exclusively to Douglas fir, a species successfully raised in nurseries and planted with singular ease and success. If hemlock could be grown and planted as easily, foresters would have wider latitude in establishing the right species in the right place. On sites better suited to hemlock, planting Douglas fir sacrifices part of the productive capacity of the land. Hemlock can outproduce Douglas fir where it is the better adapted species. Also, in areas where deer and rabbits will virtually eliminate Douglas fir stock, hemlock apparently may be grown without substantial loss.

The experimental planting will continue under observation to insure confidence in these encouraging first-year results.

Mr. Staebler is with the Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture.

Why This Industry Can Expand—Wood Supply Assured



ARE THERE PRACTICAL MEANS TO HELP NATURE GROW MORE CELLULOSE?

How to grow more wood cellulose per acre per year is subject of this Marathon Corp. conference at Rothschild, Wis. (l to r): GEORGE BRABENDER, assigned to Special Research; J. RICHTER SALVESON, Director of Central Research; Vice Pres. ALLEN ABRAMS, and VINCE MARTIN, Research Associate. Samples of wood they hold dramatically emphasize the faster growth of Wisconsin Aspen vs. Canadian Spruce. The big disc is from an 18-year-old aspen, with average diameter of 7⅞ in. The small disc in Mr. Martin's hand is from Canadian black spruce, over 100 years old, but only 2 in. in diameter. Much faster growing aspen is permitting expansion of Wisconsin industries and is often mixed with spruce furnish for quality pulps. Marathon's Research Division has an 80-acre farm near Rothschild for test plots of various wood species. It provides an intermediate stage between fundamental research on tree breeding and practical tree growing. Universities and colleges can have their research evaluated here.

CLOSEUP TELLS THE STORY

Here's how much bigger an 18-year-old aspen is than a 100-year-old spruce. This is why Michigan and Wisconsin have a new pulpwood supply—basis for expanding industry.

NEW 65 h. p.

CASE DIESEL

This powerful combination . . . the 6-cylinder Case "520" Diesel Tractor and the Harrison Loader Crane . . . affords abundant power and speed for any job of loading, unloading or stockpiling pulpwood. Big 10-ply tires . . . 18.00 x 26 . . . provide stability and flotation for big loading jobs anywhere that trucks can work. The Case "520" Diesel starts instantly at the touch of a button and runs on low-cost diesel fuel. Six point filtering eliminates fuel impurities. Comfortable seat and easy-to-reach controls provide driver comfort. Power steering makes maneuvering quick and easy in crowded yards.

Rear counterweight reduces rocking under load. Hinge-type boom with extra-long cylinders gives instant load control at any height . . . permits spotting load at full arm depth. For complete information, write J. I. Case Co., Racine, Wis.

THE HARRISON

LOADER CRANE

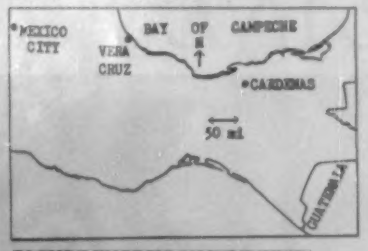
CASE

Wood for U.S. Mills from Mexico?

• Vast resources of wood, coniferous as well as hardwoods, is available in the Isthmus of Mexico for pulp and paper manufacturing and it might be profitably shipped to mills in Southern United States along the Gulf of Mexico. Export permits will be granted.

In a letter to PULP & PAPER, a reader in Cardenas, Mexico, who is in charge of a big clearing, road-building and wood utilization project there, has made this suggestion of shipping the wood to U.S. mills across the Gulf.

He is Antonio Sanchez Aldana. Although only in his early 30's, he has had several years' experience in the pulp and paper field and has a great enthusiasm for woodpulp projects. Shortly after graduating from Santa Clara University, in California, he served as pulpwood production manager and chief forester for one of Mexico's biggest mills, at Atenquique, Mexico. He writes:



MAYBE THERE'S WOOD HERE FOR SOUTHERN U.S. MILLS

This map shows where a big clearing and wood disposal and utilization project is underway in the Isthmus of Mexico. Fir and *pinabete* in the Cardenas area is being cut, could be exported across Gulf to U.S. mills if profitable.

"We would like to send some of the wood here, like fir or *pinabete*, to the United States to be tested for use in paper making. Maybe some of the big paper mills in your Southern States could use the wood profitably, and we might ship it by boat to New Orleans or other Gulf ports. Perhaps the U. S. Forest Products Laboratory, Herty Laboratory in Georgia or the Institute of Paper Chemistry in Appleton would like to make some tests."

So far, Mr. Aldana has established a sawmill and has over 10 tractors, as well as trailers and other equipment, on the job near Cardenas. The immediate project, he said, is clearing some 440,000 acres of wild jungle land, much of it never before penetrated by civilized people. An agricultural development is to follow disposal of the wood. Roads and bridges are planned where there have been none before.

"The job calls for clearing the wood," he said, "Most of it is tropical woods such as mahogany, cedar, primavera and about 25 other species. These include fir and *pinabete*. Our program calls for clearing of about 4 acres-per tractor-per day, so the lumber left is quite a bit, about 15,000 bd. ft (3 cords) per hectare (2.2 acres)."

Mr. Aldana said that permits for export of the wood will be available. He would like to know if any companies or institutions are interested in the "precious" woods or others.

"We could send any amounts, sizes, etc., desired," he wrote.

"The state of Tabasco is one of the richest in cocoa, coffee and bananas in Mexico," he says. "When the job is finished here it will also be a cotton state, something like Matamoros.

"The main road that we are building is coming through swamps, jungles and over wide water stretches, and is called the Circuito del Golfo. It runs along the Gulf coast from Matamoros to Tampico, Vera Cruz, Coatzacoalcos and will connect with Cardenas, Villahermosa, all the way to Yucatan. It will unite all of the Gulf ports and cities."

LOOKING FOR A PLACE TO PUT A ROAD

That's how ANTONIO SANCHEZ ALDANA (young man at left) explained this picture taken in Tabasco jungles, in a letter to the editor of PULP & PAPER. "Lots of tigers, snakes, etc.," he wrote.

In explaining the picture he sent PULP & PAPER, appearing on this page, he said:

"When this picture was taken I was looking for a good place to put our road. Lots of snakes and tigers here, as well as other things. We were looking for mahogany, too. I am writing this letter hoping it will find you happy with good luck around your person."

Oliver Announces New Steel Tractor

A brand-new, all-purpose wheel tractor has been announced by Oliver Corp., Chicago. Known as the Super 55, it is a four-wheel, adjustable tread type with low profile and short wheel base.

In power, the Super 55 offers a choice of diesel or gasoline engine. With either power plant, it is rated as the most powerful tractor of its type.

TO IMPROVE TREE PRODUCTION

Inland Empire Paper Co., has pledged a new 17,600 acres of its timberland near the Spokane, Wash., mill to intensive management as a new Tree Farm. Experiments will determine growth rates, suitable species, best planting methods, etc. This picture, at dedication atop Mt. Spokane, shows (l to r): C. A. BUCKLAND, Pres. and Gen. Mgr.; JIM ANDERSON, Forester, and D. H. BANTA, Asst. to Gen. Mgr., all of the paper firm, and U. R. ARMSTRONG, Pres., Western Pine Assn., handing them their Tree Farm certificate.

Make sure the screw conveyors you buy pass this quality test!

If they don't . . . investigate LINK-BELT's sound engineering and quality manufacture . . . your assurance of top performance

1. Is flighting accurately formed?

Link-Belt's specialized machinery assures accurate forming, producing uniformity of flighting curvature.

2. Are diameters uniform?

Only specially selected steels are used to meet Link-Belt's rigid specifications.

3. Will the hangers match your exact needs?

Hangers are available in gray iron or steel frames in a range of styles and with various bearing materials.

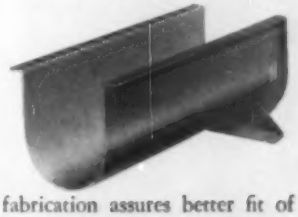
4. Will installation be easy?

Straightness is checked before shipping, and extra care is taken in handling and loading. Jig-drilled coupling bolt holes facilitate assembly.

5. Can gates be installed on the job?

Gates are available for bolting or welding in place right on the job for ease of trough opening location.

6. Are troughs fabricated to your specifications?

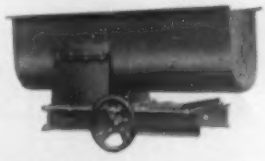


Link-Belt's accurate fabrication assures better fit of all components. Choice of metals to fit your need.

7. Is the drive fully integrated?

Only Link-Belt builds a complete line of gear and chain drives, couplings, bearings, shafting.

8. How wide a choice of spouts and gates do you have?



Discharge spouts and gates can be fixed or detachable. Hand or rack-and-pinion, flat or curved slide gates.

9. Is full ordering information readily available?

Link-Belt's 92-page Screw Conveyor Book 2289 contains complete ordering data. Ask your Link-Belt representative or distributor for your copy today.

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IN OPERATION

(Left) Overhead "fishtail" and jets break up "smelt" as it leaves spout at Penobscot Chemical Fibre Co. Ingenious addition is waterfall effect coming from underlip of spout. It adds to smelt breakup.

NOT OPERATING

(Right) To show PULP & PAPER readers finer details of spout and underlip, Penobscot shut down its furnace to permit this close-up to be taken.

How Penobscot Minimizes Smelt Plant Blasts

CHECKING THE INSTRUMENTS

(Left) Check on Babcock & Wilcox Tomlinson furnace is made by operator (l to r) CHARLES BRADBURY, SHIRLEY TREADWELL and ROBERT PERRO. (Right) A further check on temperature of jets and waterfall is made at this special check point by operator ROBERT PERRO.

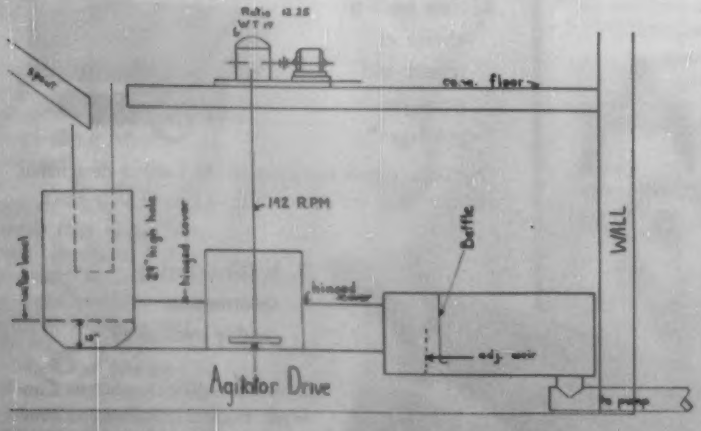


DIAGRAM SHOWS NEW SMELTER PLANT ARRANGEMENT

At Penobscot Chemical Fibre Co., underlip has been added to spout at upper left through which water flows to further aid jet sprays in breaking up molten smelt stream. 10,000 gal. tank has been relocated about 60 ft. away and replaced by two-200 gal. tanks. Water level in both tanks is kept at low 13 in. level to minimize any possible explosive force.

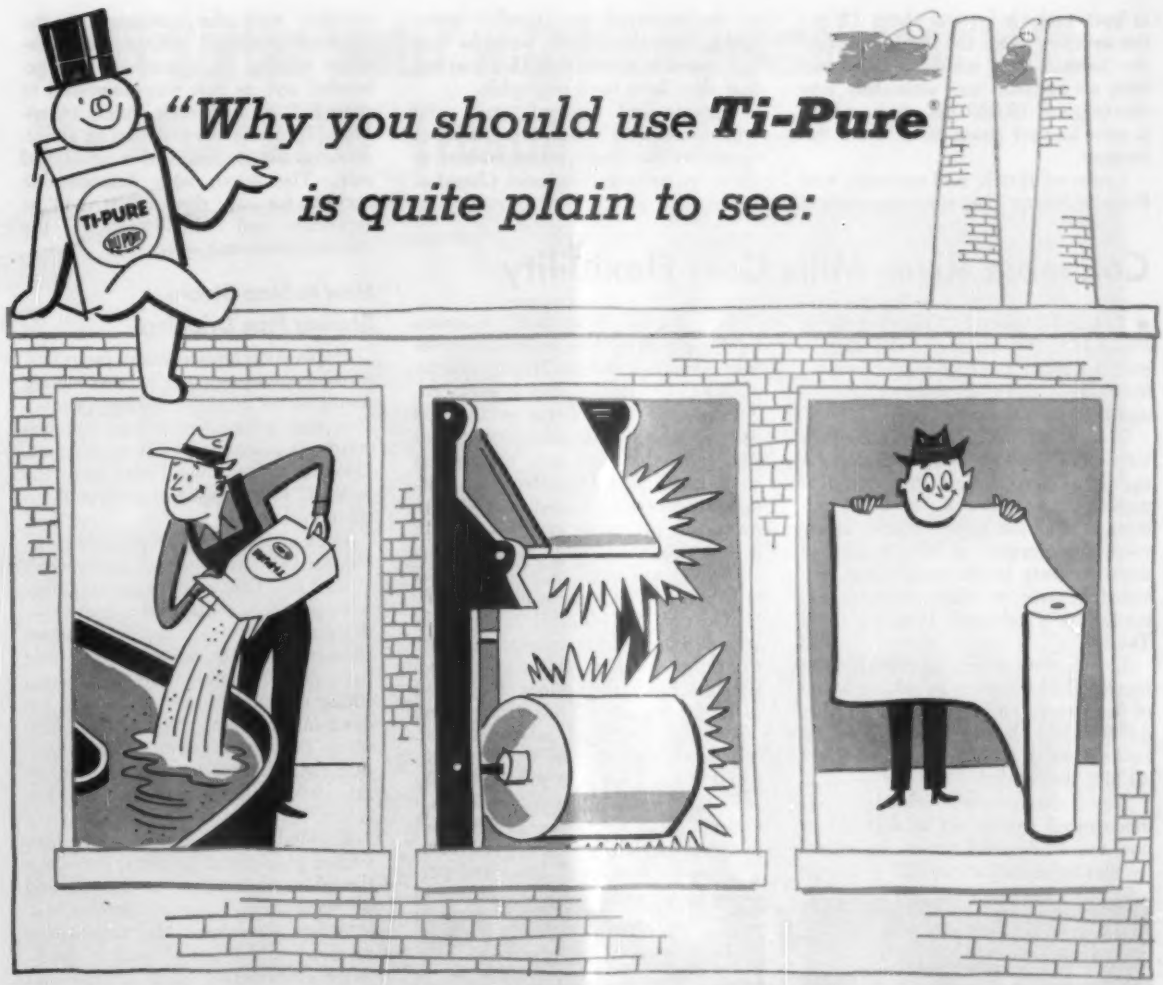
• An effective way to minimize smelter plant explosions in Kraft or soda pulp mills has been devised by Penobscot Chemical Fibre Co., reducing lost production time, equipment damage and safety risks.

PULP & PAPER visited this soda pulp mill, known for its high quality pulps, at Great Works, Me., at the invitation of Eugene H. Clapp, II, president, who wanted to pass along the benefits of their experience to the industry.

In soda or kraft pulp mills, Edward W. Keith, soda div. supt., explained, the weak or black liquor (green in kraft pulping), is concentrated until it is strong enough to burn in the recovery furnace. Large blocks of the basic requirements of steam and power can be economically developed within the recovery cycle.

At Penobscot, black liquor is burned in a Babcock & Wilcox Tomlinson furnace. The molten sodium carbonate pours from the bottom of the furnace by way of a spout into the dissolving tank where it forms a water solution called "leach." It is in this tank that explosions may occur. As the molten liquid flows from the spout, jets of water, at 50-60 lbs. pressure, attack it to break it up. However, from time to time, accumulations occur in the bottom of the tank in spite of the jets and it is these accumulations which are believed to cause explosions.

According to Franck Morrison, assistant supt., soda div., this is the solution which management and operating personnel devised: They added an underlip to the spout through which flows water at 150-160 degrees. This waterfall effect further breaks up the molten smelt stream. As a further precaution to minimize any possible explosive force and resultant damage, they replaced the 10,000 gal. tank with two-200 gal. tanks. Water level



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in both tanks is kept at about 13 in.; the overflow from the first going into the second tank which is equipped with an agitator, and ultimately into the original 10,000 gal. tank, which is now located about 60 ft. from the furnace.

Lynwood Hatch, mill manager, told PULP & PAPER that since installation of the waterfall and smaller water tanks, explosions have been so rare and minor in extent that they can say that they have been negligible.

Operators of recovery units who wish to see this smelt tank set-up in operation can make arrangements to do so by writing Penobscot Chemical Fibre Co.

Columbia River Mills Gain Flexibility

● Latest additions in Columbia River Paper Mills' continuous modernization program make for high manufacturing flexibility, improved product quality and increased daily tonnage.

This 3-machine, 150-ton ammonia-base sulfite mill at Vancouver, Wash., makes a line of specialties and fine papers running heavily to bond. Although machine improvements lately were concentrated at No. 3, general improvements in the pulp plant provided benefits to other machines according to Production Manager Cecil Taylor.

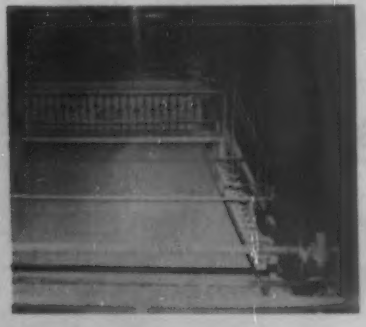
Bleach plant screening capacity was increased 25% percent by adding a line of flat screens and installing a Morden 2,000-lb. Slushmaker for processing broke from all machines. A Bird Save-all also was added.

No. 3 machine was added to and modernized to the extent that it can now make tub-sized papers. Its capacity was increased about 25%.

New Valley Iron stock entrance equipment of modern design improves fiber formation and has larger capacity than did the former unit it replaced. The whole front end was modernized by converting stock line, Fourdrinier pan and other parts over to stainless steel; installing a 24-in. diameter Griffith self-doctoring rubber-covered top press roll at newly installed suction press, size press and 11-roll after-dryer section.

No. 3's size-press, a hydraulically loaded unit of Columbia River Mills' own design, using Huntington Rubber Co. rolls, makes for additional production flexibility throughout the entire plant. Previously all tub-sized papers were made on No. 1 machine. Supt. Taylor says No. 3 now has flexibility equal to No. 1 for light and heavy tub-size papers. Piping, pans and starch tanks of this size component are stainless steel by Northwest Copper Works.

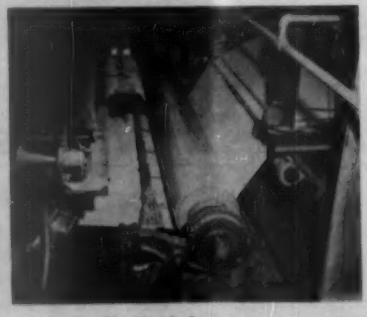
Capacity and speed increased perceptibly with the extension of the machine through adding the after-dryer section. The lineshaft was extended and its belt was connected to new Falk gear-Fawick clutch assemblies. The company installed an aluminum ventilating hood over additional rolls. The hood, with demountable sections for easy dismantling, will be extended and wholly replace the former ventilating system.



COAST MILL ADDITIONS

Recently installed Valley stock entrance equipment provides better formation and increased capacity for Columbia River's No. 3 machine.

Griffith self-doctoring rubber-covered top roll installed at suction press.



Hydraulically loaded size press section designed by Columbia River personnel, equipped with Huntington rolls, gives plant flexibility.

Demountable sectionalized hood covering recently added 11-roll after-dryer section which contributes materially to No. 3's speedup.

How to Stop Steam Shower Pipe Dripping

In-plant suggestion award programs, a means of stimulating interest among employes to improve quality, production and safety, sometimes produce results of more than local significance. Occasionally an award idea hits "the jackpot" in its application throughout the industry.

Back in 1950 J. H. Dupasquier, machinetender at Crown Zellerbach's West Linn, Ore. plant, was struggling with production difficulties caused by dripping of condensate from steam shower pipes. He unsuccessfully tried to remedy the situation by positioning, tilting and adjusting the pipe. He became inspired with the idea that if the steam ports were set at a higher position than the condensate, no condensate would be exhausted with the steam.

He made a drawing indicating how such a pipe could be built, jotted his thoughts down on a form, and dropped them in the suggestion box.

A few days later Mr. Dupasquier received a $5 initial award check. After constructing such a pipe and trying it out, the company presented him with a $500 merit award.

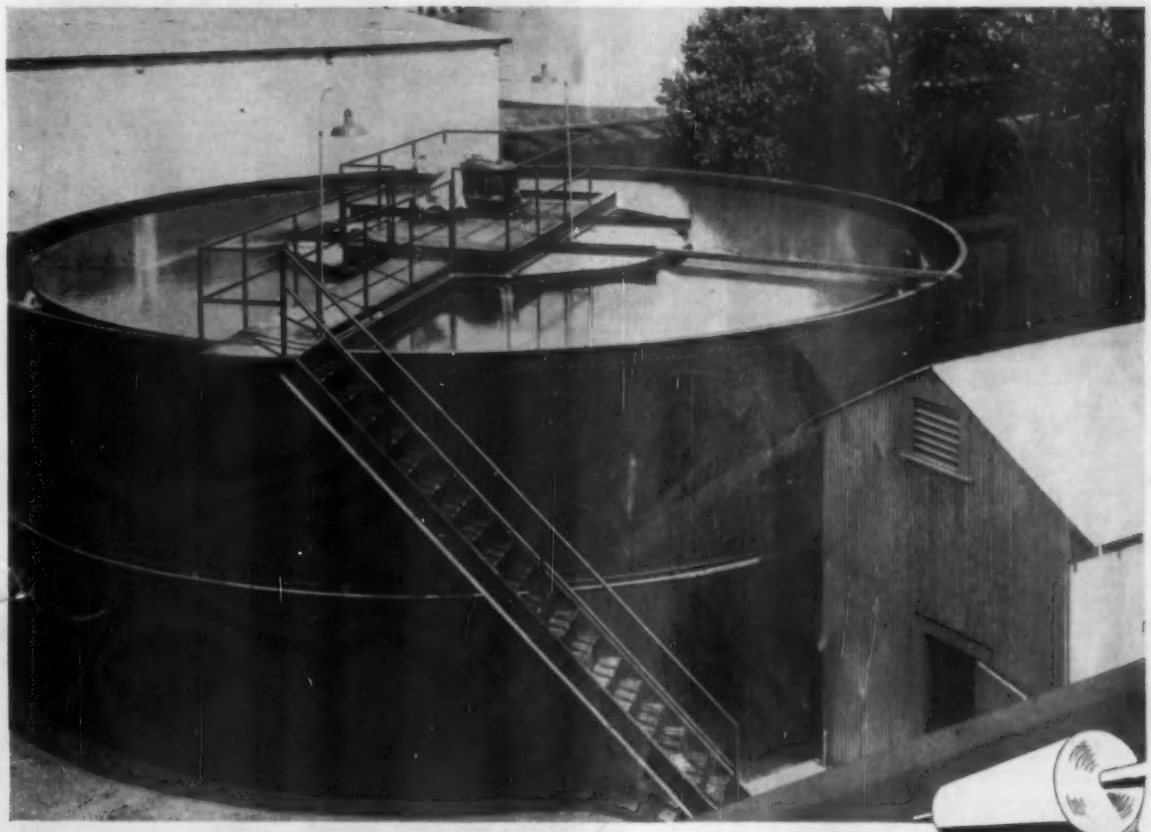
The company since financed and otherwise assisted in his acquisition of patent rights. U. S. rights already have been granted.

The inventor continues as a full-time machinetender with 31 years employment at the West Linn mill. But he has arranged for the dripless pipes to be custom-produced and has established a sales office at his Gladstone, Ore., home.

West Linn operators who have used the dripless steam pipes point out that this shower unit is installed level so it is equidistant from sheet at all points, will function in any angular position and works effectively at any point where steaming is beneficial—from Fourdrinier to supercalender.

Charles E. Ackley, paper mill superintendent at West Linn, says the Dupasquier pipes improved paper quality "because we can use them where drip from regular showers would cause paper spots." He says they are used wherever steaming of the sheet is desirable, whether sheet is wet or dry.

NOW! Soften water without chemical cost with the ACCELATOR® Treating Plant



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The "ACCELATOR" treating plant offers you other advantages, too. First, speeding of chemical reactions and solids separation results in small space requirements and lowered construction costs for either well water or surface water treatment.

Second, it improves your product by improving water quality through clarification, color and iron removal or through partial or complete softening...as may be required...in any capacity.

It will pay you to investigate the possibilities of the "ACCELATOR" plant for treating your water. *Write today for detailed information.*

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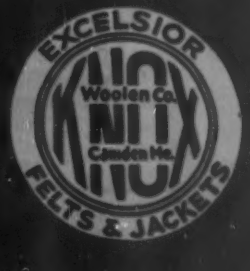

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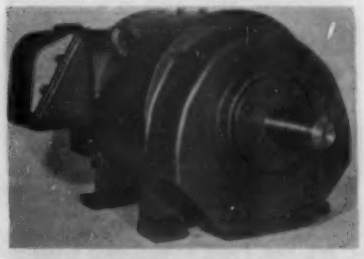
Chlorine Moves By Barge on Willamette

Pennsylvania Salt Mfg. Co. of Washington has inaugurated what is believed the first tank car movement of chemicals by barge in the Columbia-Willamette Rivers area.

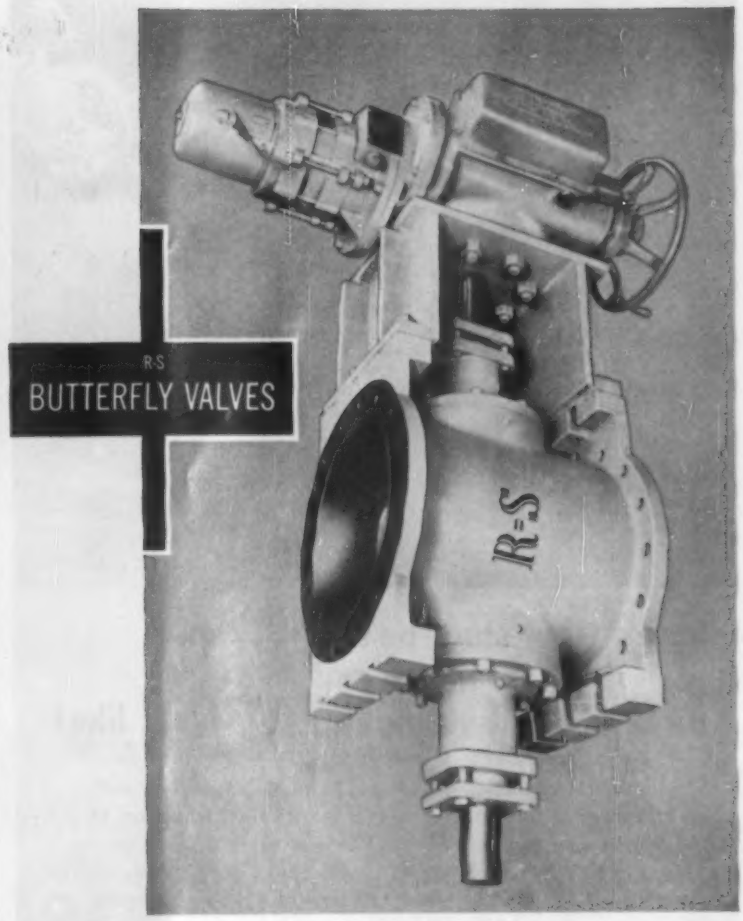
About 120 tons of liquid chlorine, in 6 tank cars, were moved in the first barge trip from Penn Salt's Portland, Ore., plant up the Willamette to the Crown Zellerbach West Linn, Ore., mill. Formerly chlorine was moved in 1-ton cylinders to this mill, so this shipment would have required 120 cylinders and slower delivery.

Fred Shanaman, president of Penn Salt of Washington, LeRoy Shanaman, sales manager for heavy chemicals, other Penn Salt officials and many guests, including Manager Malcolm Otis and other key men from the West Linn mill, saw the barge leave, then after a lunch in Portland, went to West Linn and saw the unloading by connecting pipe-lines.



New Totally-Protected Super "T" Motor

RELIANCE ELECTRIC & Engr. Co. has developed the new Super "T" line industrial direct current motors, said to produce the fastest and most accurate response ever offered in a standard design motor. "Dynamic Response" is described by Reliance as the fundamental, yet spectacular feature built into the Super "T" motor, which the company feels is perhaps the most revolutionary advance in d-c motors in 40 years. Performance data and specifications are available from Reliance, Cleveland 10, O.



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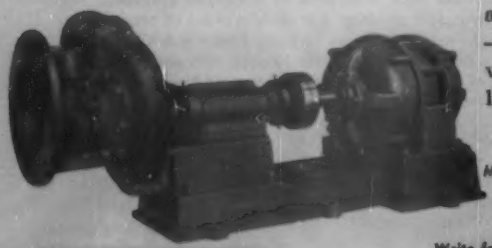
This is a Morris Stock Pump in the basement of a well-known paper mill. As you can see, the accumulation of paper waste covering it hasn't been disturbed — not once in the last 7 years. No need to. Day after day, this 4-inch Morris ST-P has delivered 150 tons of 3½% consistency paper stock to the head box against a 65-foot total dynamic head—without breakdown. That's *dependability!*

More Output With Less Power and Maintenance

Owners are usually amazed at the sustained efficiency and the lower power, labor and maintenance costs of the Morris ST-P Stock Pump. The accurate balance of all rotating parts—the smooth, vibration-free operation—and the outstanding wearability of all parts—give maximum value for the dollars invested.



Morris ST-P Stock Pump

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MORRIS *Centrifugal Pumps*

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BY NEW SMALL mechanical pulp mill in Virginia. A man of executive calibre with groundwood experience capable of supervising entire operation. An exceptional opportunity with an unlimited future. Top references required. Reply Box 207, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

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Opportunity available for Chemist or Chemical Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years with several years experience in pulp and paper chemicals and fibers. Good salary with excellent opportunity for advancement. Send resume of educational background and industrial experience. All replies confidential. Box 174-A, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

YOUNG GENTLEMAN. British. At present sole representative in Hongkong of British paper exporters, desires emigrate to Canada. Available first half 1955. Twelve years experience paper trade export and local consumption. Reply Box 184, PULP & PAPER, 370 Lexington Ave., New York 17, New York.

SANITARY ENGINEER

Opportunity available for Sanitary Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years. Experience in paper mill wastes, stream pollution and water purification or similar experience. Good salary and advancement. Send resume of educational background and industrial experience. All replies confidential. Box 175-A, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

WANTED

STRUCTURAL ENGINEER

With 5-10 years experience in steel and concrete design to work on design of pulp mill construction. Permanent position. Write: R. J. Kutchera, Chief Engineer

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SUPERINTENDENT for Multiwall Paper Bag Plant located in California. Full charge all manufacturing operations. Send full details of education, age, background and industrial experience in first reply. Communications will be kept strictly confidential. Box 205, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

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Two Jones Majestic Jordans. Please state age, general condition, location, delivery and price. Reply to Box 206, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

CHIEF DEVELOPMENT ENGINEER WANTED for established and recognized firm building paper mill machinery and equipment. Must be graduate engineer and have wide practical experience. If you are available for this or other good paying positions in paper or pulp manufacturing or paper converting, it will pay you to have your application in our files. Negotiations are confidential. No fee to be paid unless you accept employment through us.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 2-6547, 294 Wash. St., Boston 8, Mass.

INDUSTRIAL ENGINEER

College graduate, experienced in planning and scheduling production process, cost reduction, statistical reporting and process improvement for an expanding pulp and paper mill located in the Middle Atlantic States. Age to 30. Good salary and opportunity for advancement. Send complete resume. All replies confidential. Box 176-A, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

GENERAL SUPERINTENDENT WANTED for large northern Fourdrinier paper mills, making wide variety of papers. Excellent opportunity for top flight man with extensive experience in paper making. Attractive salary. Write or telephone in confidence to:

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Large kraft mill in eastern Virginia has excellent opportunities for technical men in Laboratory, Operations and Engineering Departments. Experience in pulp and paper desirable but not essential. Salary according to qualifications. Box 201, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

WANTED: SALESMEN. Get the most out of your calls. You can handle our paper chemicals as a side line. Exceptionally high commissions. For information which will be kept strictly confidential, write Box 202, PULP & PAPER, 370 Lexington Ave., New York 17, N. Y.

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SALES ENGINEER—to cover seven Midwestern States, selling paper mill equipment. Must be married, age 30 to 45, engineering education, degree not necessary. Reply to Box 195, PULP & PAPER, 370 Lexington Ave., New York 17, New York.

High machine speeds?
High temperature headbox stock?
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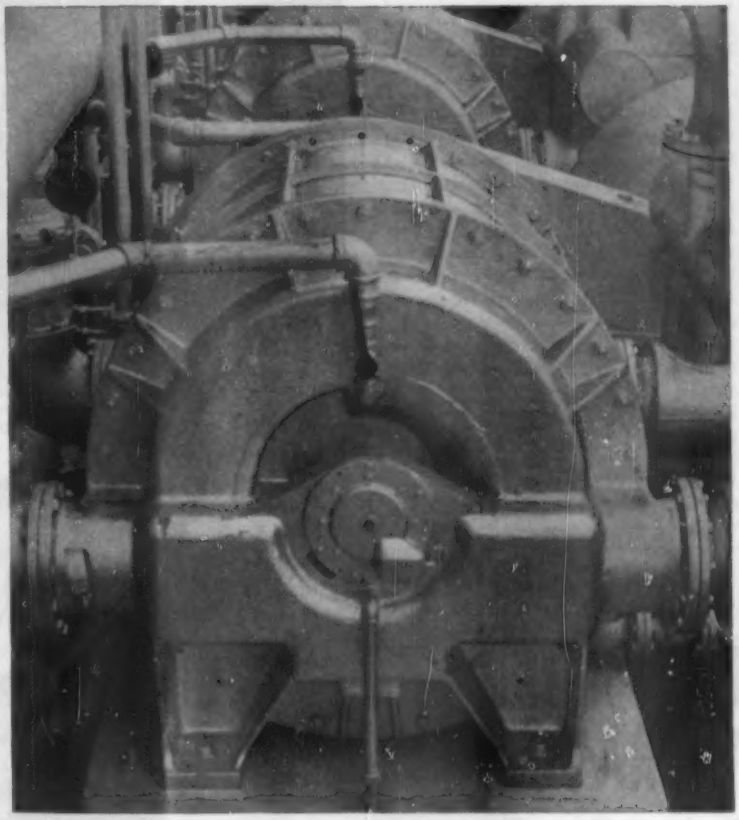

Air from the suction rolls on paper machines carries with it substantial quantities of moisture. This considerably reduces the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump, because of the unique principle of operation, the bulk of this vapor is effectively condensed inside the pump. The total capacity of a Nash is therefore increased.

When you specify a Nash Pump it can be closely sized to the job. It is not necessary to select an over-sized unit, because the rated capacity of the Nash may be relied upon.

That is one of the reasons why Nash Vacuum Pumps are installed in over a thousand leading Paper Mills. An engineer from Nash will be glad to survey your mill, and make recommendations, entirely without obligation to you.

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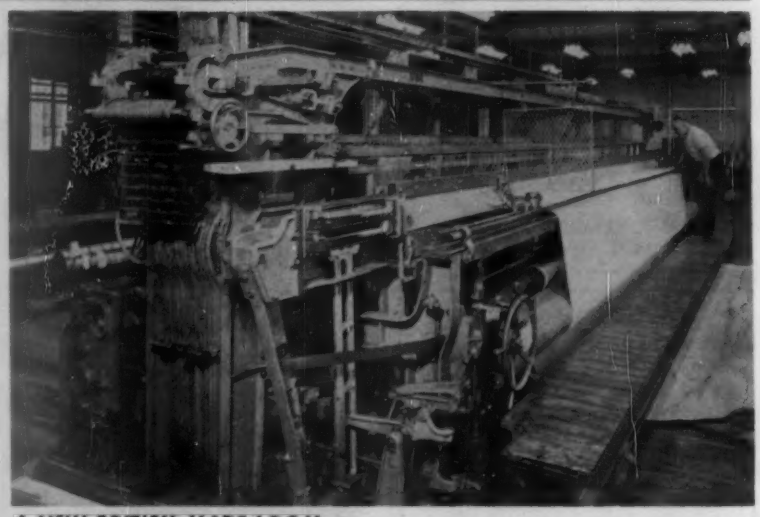
EQUIPMENT AND SUPPLY COMPANY NEWS

LINK-BELT CO. has opened a new district sales office and warehouse at 3030 N.W. Industrial St. in the Guilders Lake area of Portland, Ore., to give better service to the Pacific Northwest industries. **LESTER T. GRAHAM,** Link-Belt manager in Portland, welcomed 400 visitors at a house-warming for the new headquarters including many pulp and paper men. President **ROBERT C. BECHERER** of Link-Belt was on hand with other top Chicago officials.

ALLIS-CHALMERS announces what is believed to be the first rib-type enclosed fan cooled wound-rotor motor to be made with slip rings, brushing rigging, rotor and stator inside a single frame enclosure. This first A-C explosion proof wound-rotor motor to bear the Underwriters' Laboratories label is available at 1800 rpm and slower speeds, in frames 284 to 505, in standard enclosed or explosion proof construction. It is applicable where low starting current, high starting torque, smooth acceleration, jogged or variable speed dictate such use, and where moisture, corrosive or hazard conditions require total enclosure. Write for leaflet 51R8195 to Allis-Chalmers Mfg. Co., 995 South 70th St., Milwaukee, Wis.



A NEW BRITISH-MADE LOOM

To satisfy growing requirement for more tightly woven, firmer papermakers' fabrics, F. C. Huyck & Sons recently installed this British-made loom. Only machine of its kind in U.S., the new loom permits weaving of heavy constructions not possible on conventional domestic equipment. It incorporates mechanical features which make possible greater weave uniformity and straighter, more even edges.

JOHN B. CALKIN, assistant to the president, **FOSTER D. SNELL INC.,** New York City, has reviewed a new book, *Manufacture and Application of Lubricating Greases,* by C. J. Bonar, chief research chemist, Battenfield Grease and Oil Corp., published by Reinhold Pub. Co. Mr. Calkin says "this book is a much needed reference and should be useful to all mechanical engineers who have lubrication problems. . . . there are 23 chapters . . . excellent coverage of the field and should be extremely helpful to engineers in pulp and paper" (more information on request).

FISHER & PORTER CO., Hatboro, Pa., is saving 60% of the former manufacturing cost of spider assemblies for the new F & P flow rate integrators by using SPS Sel-Lok spring pins to fabricate clutch plates from flat stock instead of milling the parts from blocks. The mechanism is a precise, high speed integrator used with flow rate meters to count total flow units of liquids or gases metered over a given period of time. More info on request.

NOPCO CHEMICAL CO. has released a new booklet to acquaint the manufacturer of paper and paperboard with basic grades and applications of Nopco's wax sizes. **W. B. MOREHOUSE,** assistant vice president in charge of the paper chemicals division, said the booklet describes two grades of wax sizes, the Nopco 1055 and 1155 Series, and contains charts which list the physical and chemical properties of the individual sizes in each series, their uses, and suggested applications. Write for free booklet to Dept. PC, Nopco Chemical Co., Harrison, N. J.

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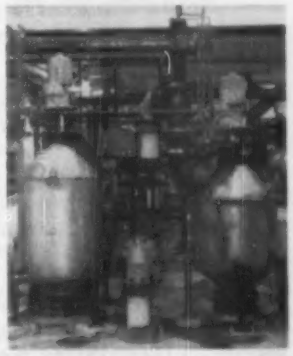
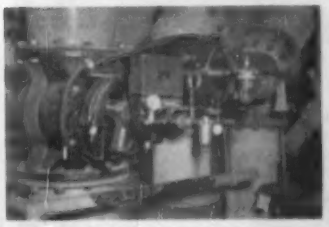
FIRST CHOICE at BOWATERS!

The modern new plant of Bowaters Southern Paper Corporation at Calhoun, Tennessee, has installed DeZurik Consistency Regulators to complete their up-to-date newsprint mill. Illustrated are two of the fifteen DeZurik Regulators in operation at Bowaters.

There are good reasons for the consistent choice of DeZurik Regulators: ACCURATE — variation limited within plus or minus .1%; DEPENDABLE—uniform operation despite spattering stock; SIMPLE—only one adjustment to change consistency setting; AUTOMATIC—24-hour recorder-controller delivers record of both incoming and outgoing stock variations; VERSATILE—wide range of box designs.





EVERY DAY MORE AND MORE MILLS ARE INSTALLING MODERN

DeZURIK AUTOMATIC CONTROL VALVES

The list of DeZurik equipment installed at Bowaters includes eleven DeZurik Vee-Port Valves with positioning type operators and liquid level control. In addition, there are eight other remotely operated valves, a number of manually operated valves, and four DeZurik Liquid Sewer Samplers.

For more information on modern DeZurik Mill Equipment, write to

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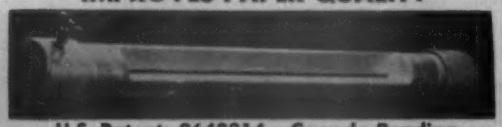

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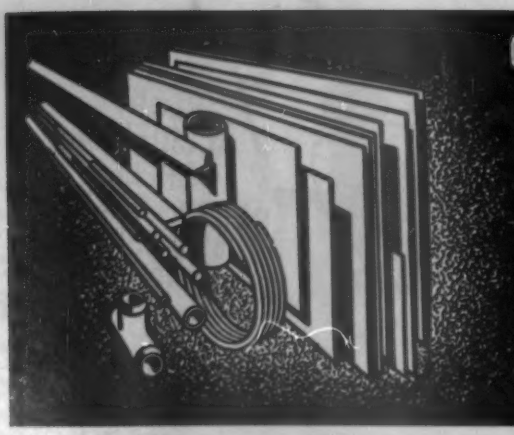

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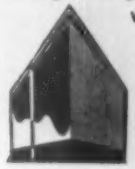

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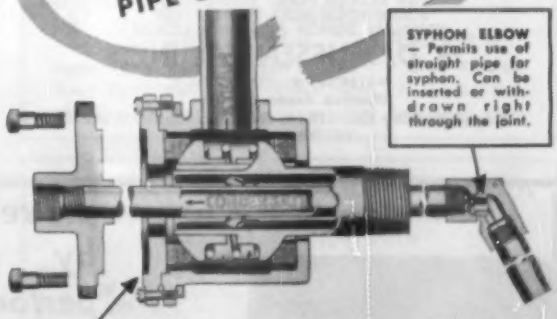
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